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Public Utility District No. 1 of Klickitat County

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GENERAL MANAGER'S REPORT TO THE BOARD For the July 14, 2020 Meeting

AGENDA ITEMS:

- A. Resolution 1789 Surplus of Miscellaneous Materials - Jeff Thayer is requesting that we surplus miscellaneous materials that are no longer compatible or have become obsolete. These items have an original purchase price of less than \$10,000.
- B. Resolution 1790 Surplus of Vehicles - Jeff Thayer is requesting that we surplus vehicle 328 and 403. The operating expenses to use these vehicles continue to increase due to the high mileage and equipment hours.
- C. KPUD COVID-19 Customer Support Program Website Update - Brandy Myers will review our current programs and provide updates on the status of these programs. We are asking for the board to authorize the General Manager to approve the website updates regarding the programs. The state has issued guidance to PUDs that programs must be centrally located and easy to find when accessing our website.
- D. Strategic Meter Modernization Program Presentation - Brandon Johnson will provide you with a staff evaluation overview of a meter modernization program. We are currently conducting a free trial across the county. There are several accounts in each area of the county that were selected for testing to obtain an objective view of connectivity feasibility for this cellular-based program.
- E. Water/Wastewater General Facilities Charges, Connection Fee, and Supporting Policies 1st Draft Proposal Review – Staff have reviewed the GFC's, connection fees, and policies 15,18, and 19. They discussed the general changes with you on June 23. They are requesting that the Board approve the updated fees and policies.
- F. Professional Services Approval - We are requesting approval of H&H Solutions. We have utilized Therese Hampton's services in previous years to work through our strategic planning sessions and wish to employ her services again this year.

NON-AGENDA ITEMS:

1. **Goldendale Energy Storage Project FERC License Application** - The final license application was filed by National Grid and Rye Development on June 22. If you are interested, the application can be downloaded from Rye's website at:

<https://www.ryedevelopment.com/projectstor/goldendale-washington/>

There is also an article on the project in Clearing Up from Friday, June 26 Clearing Up.

2. **DNR Wildland Fire Mitigation Task Force Committee** - We held a meeting last week remotely. I still think there will be positive outcomes. Unfortunately, with many DNR staff assigned to COVID-related duties and with the fire season starting, I am not sure we will meet the goal to deliver a report to the legislature by December of this year.
3. **Strategic Planning** - We are still planning on August 27, so please mark your calendars.

With my being out of the office, this report is pretty abbreviated. I will provide more updates at the meeting.

June 23, 2020

Ms. Breean Zimmerman
Hydropower Projects Manager
Water Quality Program
Washington State Department of Ecology
Central Regional Office
1250 West Alder Street
Union Gap, WA 98903

**Re: CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION
APPLICATION FOR THE GOLDDENDALE ENERGY STORAGE PROJECT, FERC
NO. 14861**

Dear Ms. Zimmerman,

FFP Project 101, LLC requests a Section 401 Water Quality Certification for Federal Energy Regulatory Commission (FERC) license application (FERC No. 14861) for the proposed Goldendale Energy Storage Project (Project) in accordance with the provisions of Chapter 90.48 Revised Code of Washington, Chapter 173-201A Washington Administrative Code, and the Federal Clean Water Act (CWA). The final license application (FLA) was filed with FERC on June 22, 2020 and is available for viewing at the following website: <https://www.ryedevelopment.com/projectstor/goldendale-washington/>

The Project is primarily located in Klickitat County, Washington on the north side of the Columbia River. The Project aerially spans the Columbia River into Oregon, and contains an area in Sherman County where the transmission line will be located. The proposed FERC Project Boundary is shown in Figure 1.1-1 of the FLA.

The proposed Project will consist of an off-stream, closed-loop pumped-storage project with an upper and lower reservoir with over 2,400 feet of maximum gross head that involve no river or stream impoundments, allowing for relatively small water conveyances. Other features include an underground water conveyance tunnel, underground powerhouse, 115 and 500 kilovolt transmission line(s), a substation/switchyard, and other appurtenant facilities.

The Project will utilize variable-speed, pump-turbine generator units and provide balancing services and renewable energy flexible capacity to utilities in the Pacific Northwest and potentially California to decarbonize the electric power system cost-effectively. Reservoirs will be entirely on private land without aquatic impacts to the Columbia River or associated riparian habitats. Water for the Project will be leased from Public Utility District No. 1 of Klickitat County (KPUD), who owns an existing water right and conveyance system adjacent to the proposed Project. The Project's lower reservoir area is located on lands that previously housed the CGA smelter (also known as Harvey Aluminum, Martin Marietta Aluminum, Commonwealth Aluminum, or Goldendale Aluminum). This facility was a primary aluminum reduction smelter that generally operated from 1969 to 2003, with a few periods when the plant shut down or had limited operation.

The proposed Project Boundary encompasses approximately 681.6 acres of mostly private lands owned by NSC Smelter, LLC. All Project land disturbance will occur either on private lands or within an existing utility right-of-way owned by Bonneville Power Administration (BPA). Washington Department of Transportation lands in the Project Boundary will be crossed underground by the Project's tunnels. Washington Department of Natural Resources land within the Project Boundary will be used only for an existing access road. United States (U.S.) Army Corps of Engineers, BNSF, and private lands will be crossed by the Project's aerial transmission line within BPA's existing transmission right-of-way.

Project construction is expected to take approximately five years. Permanent aboveground structures include the upper and lower reservoirs, the water conveyance system, and a transmission interconnection to the John Day Substation. Disturbed areas without permanent project structures will be revegetated after construction.

Proposed Uses of Water

Section 2.1.2.1 of Exhibit E of the FLA provides information on the Project vicinity's water rights and usage. Water rights in the Project vicinity are largely groundwater withdrawals for irrigation use. The next largest grouping is groundwater rights for stock watering and domestic use.

Of the larger surface water rights of the Columbia River in the vicinity of the proposed Project Boundary, the largest surface water right is owned by KPUD, and formerly provided industrial supply the historic CGA smelter. KPUD owns a 15,591 acre-feet per year water right from the former CGA smelter (No. S3-00845C, No. G4-01130C). This water right was gifted to KPUD by a quitclaim deed executed on December 22, 2005. After legal transfer of ownership, this water right was amended for municipal purposes. As mandated by Washington Department of Ecology (Ecology), the water right must be put to beneficial use by 2028. Subsequently, by Washington State law passed unanimously and signed by Governor Christine Gregoire on March 30, 2012, KPUD is expressly authorized to use this water right for a pumped storage generating facility and to sell water for pumped storage projects. The Project will use water purchased from KPUD for the initial filling of the lower reservoir and a small amount of makeup water as needed using an existing pumping station largely in a closed-loop system.

Water Quality Standards and Existing Conditions

Section 2.1.3 of Exhibit E of the FLA provides information on the Project vicinity's water quality. The Columbia River, which flows under the Project's proposed BPA transmission route, forms the border of Washington and Oregon and is included on the impaired waterbodies lists for both states. The Washington 303(d) List was used instead of the Oregon List because the Oregon List includes larger (longer) assessment units and therefore includes additional impairments that have not been found in the Project vicinity. For Washington, there are two assessment units in the Project vicinity. The portion of the river at the transmission route crossing is part of the Lake Celilo assessment unit, which extends upstream to the John Day Dam. The Washington Lake Umatilla assessment unit starts at the John Day Dam and extends upstream.

Washington lists the Columbia River within their Lake Umatilla assessment unit on the latest (2012) 303(d) List of Impaired Waterbodies as impaired for water temperature, and pesticides and polychlorinated biphenyl (PCBs) in tissue. The Lake Celilo assessment unit is listed exclusively for temperature. This 2012 list for Washington waters was approved by U.S. Environmental Protection Agency (USEPA) in 2016. The Lake Umatilla and Lake Celilo assessment units are also included in two Columbia River Total Maximum Daily Load (TMDL) plans: for total dissolved gas in water and dioxins in tissue. Total dissolved gas and dioxin are not listed as impairments on the 2012 303(d) List.

Project-Related Studies and Potential Effects on Water Quality

As discussed in Section 2.1.1 of Exhibit E of the FLA, a wetland and waterbody delineation occurred in May 2019 to document surface features within the Project footprint.

Section 2.2 of Exhibit E of the FLA discusses the potential effects of the Project on water resources, including water quantity and quality.

The Project is not expected to cause any impacts to water quality within or adjacent to the Project area, including to intermittent streams or the Columbia River. Any potential impacts to surface waters due to ground disturbance during construction would be managed through the Project's Erosion and Sediment control plan.

Water Quality Protection, Permitting, and Mitigation Measures

Section 2.3 of Exhibit E of the FLA provides applicant recommendations to minimize and mitigate Project effects to water resources. However, because the Project is a closed-loop system with no outfall to any surface waterbody, the Project would not have any water quality effect on the Columbia River or other surface waterbodies. The Project will obtain a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit to comply with Washington state law and the federal CWA. The applicant will develop and implement a Soil Erosion Control Plan, a Hazardous Substances Spill Prevention and Cleanup Plan, and an operational adaptive water quality monitoring and management program.

Summary

The applicant has continued to make a good faith effort to reach out to numerous state agencies and interested stakeholders to obtain existing resource information as well as understand potential impacts associated with the project. The Project design, applicant recommendations for mitigation, and resource studies provided in the FLA are a product of stakeholder and agency contributions. FFP Project 101, LLC will continue to work closely with Ecology, other agencies, and stakeholders to ensure that the proposed Project will not negatively affect water resources.

Sincerely,



Erik Steimle

Portland, Oregon

erik@ryedevelopment.com

ATTACHMENT – WATER QUALITY CERTIFICATION APPLICATION (401) FOR EXISTING
HYDROPOWER DAMS FORM



Water Quality Certification Application (401) for Existing Hydropower Dams Form

(For use in Washington State)



Water Quality Certification Hydropower Coordinator Send to:
Water Quality Program
Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98501

NOTE: For other permitting and regulatory questions, contact the Office of Regulatory Assistance at 1-800-917-0043, assistance@ora.wa.gov, or www.ora.wa.gov. Use the Joint Aquatic Resources Permit Application (JARPA) for any construction activities.

Please type or print in black ink.

ALSO be sure to complete the Signature Block on page two.

1. Applicant: FFP Project 101, LLC

Mailing address: 220 NW 8 th Ave Portland, OR 97209

Work phone: 503-998-0230 erik@ryedev.com	E-mail address:	Home phone:	FAX #:
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If an agent is acting for the applicant during the permit process, complete #2.

2. Authorized agent:

Mailing address:

Work phone:	E-mail address:	Home phone:	FAX #:
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3. Waterbody(s) of FERC project: Off-channel closed loop pumped storage project, with water sourced from KPUD water rights from Columbia R. Is this waterbody on the 303(d) list? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Has, or could, the project contribute to exceedance of any water quality standard? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, what parameter(s)? Website for 303(d) list: http://www.ecy.wa.gov/programs/wq/links/impaired_wrs.html	Tributary of: Pacific Ocean	WRIA #: 30 Klickitat http://www.ecy.wa.gov/services/gis/data/hydro/wria.gif
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4. Attached materials: Preliminary SEPA Checklist attached. Goldendale Energy Storage Hydroelectric Project Final License Application (June 2020) available at: https://www.ryedev.com/projectstor/goldendale-washington/ Attach a complete list of all applicable studies, research, summaries, and information that is needed for Ecology to conclude that water quality standards will be met for the project.

Circulated by:

Date Received:

Forwarded to (regional office lead):

Date Forwarded:

Application is hereby made for a certification that water quality standards will be met. I will make available to Ecology, upon request, any information necessary for Ecology to make a 401 water quality certification decision. I am familiar with the existing information and believe that it is sufficient to show that water quality standards will be met for this project. To the best of my knowledge and belief, such information is true, complete, and accurate.



6/22/2020

Signature of applicant

Date

Signature of authorized agent

Date

I hereby designate to act as my agent in matters related to this application for permit(s). I understand that if a federal permit is issued, I must sign the permit.



6/22/2020

Signature of applicant

Date

This application **must** be signed by the applicant and the agent, if an authorized agent is designated.

If you need this publication in an alternate format, please contact us at 360-407-6404. If you are a person with a speech or hearing impairment, call 711 or 800-833-6388 for TTY

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B—Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background

1. Name of proposed project, if applicable: Goldendale Energy Storage Hydroelectric Project

2. Name of applicant: FFP Project 101, LLC

3. Address and phone number of applicant and contact person:

FFP Project 101, LLC

Contact: Erik Steimle, Vice President of Project Development

220 NW 8th Avenue

Portland, OR 97209

(503) 998-0230

4. Date checklist prepared: June 22, 2020

5. Agency requesting checklist: Washington State Department of Ecology

6. Proposed timing or schedule (including phasing, if applicable):

It is anticipated that pre-construction activities associated with the Goldendale Energy Storage Hydroelectric Project (Project) would be initiated in Q3 2022, with overall Project construction commencing in Q4 2024, and completion of commissioning and operation anticipated in Q4 2029. Construction activities are expected to last approximately 5 years. However, the overall project schedule and sequencing may be modified based upon receipt of applicable regulatory permits and approvals and/or final project design. A summary of the conceptual Project construction schedule is as follows. Refer to the Federal Energy Regulatory Commission (FERC) Final License Application (FLA), Exhibit C—*Concept Project Schedule*, for additional information and details.

Project Phase	Estimated Duration
Pre-Construction Activities	
Establish site, access, and construction camp facilities	Q3 2022–Q2 2023
Establish temporary power	Q4 2022–Q4 2023
Establish construction water supply	Q4 2022–Q4 2023
Construction	
Upper reservoir, dam, and intake	Q4 2024–Q1 2029
▪ Vertical intake shaft	Q1 2026–Q2 2028
Lower reservoir, dam, and intake	Q4 2024–Q1 2027
Powerhouse complex	
▪ Civil works	Q4 2024–Q2 2027
▪ Mechanical and electrical	Q4 2026–Q3 2028
Conveyance tunnels	Q2 2025–Q2 2027
Substation and interconnection	Q4 2024–Q4 2026
Commissioning	Q2 2027–Q3 2029

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No future additions, expansions, or further activities related to the Project are planned at this time.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

The following documents have been prepared and are incorporated into the FERC Final License Application (FLA):

- FLA Exhibit A—*Description of the Project*
- FLA Exhibit B—*Statement of Project Operation and Resource Utilization*
- FLA Exhibit C—*Proposed Construction Schedule*
- FLA Exhibit D—*Statement of Cost and Financing*
- FLA Exhibit E—*Environmental Report*
- FLA Exhibit F—*General Design Drawings and Supporting Information (CEII)*
- FLA Exhibit G—*Map of the Project*
- FLA Appendix A—*Site Photographs*
- FLA Appendix B—*Wetland and Waters Delineation Report*
- FLA Appendix C—*Botanical Survey Report*
- FLA Appendix D—*Wildlife Management Plan*
- FLA Appendix E—*Vegetation Management and Monitoring Plan*
- FLA Appendix F—*Correspondence*
- FLA Appendix G—*Historic Properties Management Plan and Unanticipated Discovery Plan*
- FLA Appendix H—*A Cultural Resources Survey of the Goldendale Energy Project No. 14861* (Shellenberger 2019) (PRIVILEGED)
- FLA Appendix I—*Economic and Fiscal Impact Analysis of the Goldendale Pumped Storage Project* (Highland Economics, LLC 2019)
- FLA Appendix J—*Aesthetic Resources Study Report*
- FLA Appendix K—*Klickitat PUD Correspondence*

Additional environmental documentation that has been prepared or will be prepared for the Project:

- Stormwater Pollution Prevention Plan (SWPPP)
- Erosion and Sediment Control Plan
- Hazardous Substances Spill Prevention and Emergency Cleanup Plan
- Health and Safety Plan
- Dam Emergency Action Plan
- Traffic Management Plan
- Spill Prevention Control and Countermeasure Plan
- Prospective Purchaser Agreement Detailed Proposal—Removal of West Surface Impoundment

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

There are no applications that are pending governmental approvals for other proposals within the Project site.

10. List any government approvals or permits that will be needed for your proposal, if known.

Federal Energy Regulatory Commission

- Preliminary Permit for Goldendale Energy Storage Project No. 14861—Issued March 8, 2018
- National Environmental Protection Act
- FERC License

Bonneville Power Administration (BPA)

- Large Generation Interconnection Agreement

U.S. Army Corps of Engineers (Corps)

- Clean Water Act (CWA) Section 404 Permit

Washington Department of Ecology (Ecology)

- CWA Section 401 Water Quality Certification
- National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit
- Reservoir Permit
- Prospective Purchaser Agreement Detailed Proposal—Removal of West Surface Impoundment (will be a part of the Prospective Purchaser Consent Decree)

Washington State Department of Fish and Wildlife

- Hydraulic Project Approval

Klickitat County

- Building permit(s)

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The proposed Project will consist of a closed-loop pumped-storage hydropower facility with an upper and lower reservoir with over 2,400 feet of maximum gross head that will be located off-stream of the Columbia River. The Project will utilize variable-speed, pump-turbine generator units and provide balancing services and renewable energy flexible capacity to utilities in the Pacific Northwest and potentially California to cost-effectively decarbonize the electric power system. The reservoirs will be constructed entirely on private land without aquatic impacts to the Columbia River or associated riparian habitats.

The proposed Project will consist of the following new facilities:

- An upper reservoir consisting of a concrete face rockfill embankment dam approximately 175 feet high, 8,000 feet long, a surface area of about 61 acres, storage of 7,100 acre-feet, at an elevation of 2,940 feet above mean sea level.
- A lower reservoir consisting of a concrete face rockfill embankment dam approximately 205 feet high, 6,100 feet long, a surface area of about 63 acres, storage of 7,100 acre-feet, and an elevation of 580 feet above mean sea level.
- Upper reservoir ungated vertical intake structure with a hood to prevent vortex formation.
- Lower reservoir horizontal intake structure, including vertical steel slide gates to allow isolation of tailrace tunnel from lower reservoir.
- Water conveyance system and penstocks, including:
 - 29-foot diameter concrete-lined vertical shaft (approx. 2,200 feet);
 - 29-foot diameter concrete-lined headrace tunnel (approx. 3,300 feet);
 - 22-foot diameter concrete-lined high pressure manifold tunnel (approx. 200 feet);
 - 15-foot diameter steel/concrete-lined penstock tunnels (approx. 600 feet each);
 - 20-foot diameter steel-lined draft tube tunnels, each of which including a bonneted slide gate to allow isolation of pump-turbines from lower reservoir (approx. 200 feet each);
 - 26-foot diameter concrete-lined low pressure tunnel (approx. 200 feet); and
 - 30-foot diameter concrete lined-tailrace tunnel (approx. 3,200 feet).
- An underground water conveyance tunnel, underground powerhouse cavern, and underground transformer gallery cavern containing 18 115-kilovolt (kV) intermediate step-up transformers.
- 115 and 500 kV transmission line(s).
- A substation/switchyard and other appurtenant facilities.
- Aerial transmission line and interconnection to BPA's John Day Substation.
- Minor appurtenant support structures (e.g., maintenance building, shop) and security fencing.

Project Features Summary

Project Characteristics	
Approximate Installed Capacity	1,200 MW
Assumed Number of Units (Variable Speed)	3 x 400 MW units
Assumed Average Gross Static Head	2,360 feet
Assumed Usable Storage Volume	7,100 AF
Approximate Energy Storage	14,745 MWh
Approximate Hours of Storage @ 1,200 MW	12 hours
Underground Powerhouse	
Rated Head (Gross)	2,360 feet
Max Flow Generating Mode	8,280 cfs
Max Flow Pumping Mode	6,700 cfs

AF = acre-feet; cfs = cubic feet per second; MW = megawatt; MWh = megawatt-hour

Initial fill water and periodic make-up water for the Project will be purchased from Public Utility District No. 1 of Klickitat County, Washington (KPUD), who owns an existing water right and will provide the water via an existing conveyance system adjacent to the proposed Project. The Project will not involve river or stream impoundments. FERC FLA Exhibit F, Figures F-7 and F-8, and Appendix K, Figure F-5, show KPUD's industrial water conveyance system, including the intake and pumping facilities on the

Columbia River, the alignment of the buried piping to two water storage tanks, and a buried 30-inch diameter steel fill conduit from the storage tanks that terminates with a Project water service shut-off valve in a water supply service vault on the Project boundary. FERC FLA Appendix K, Figure 5-1, also shows KPUD's potable water supply system that will serve the Project with potable water.

High voltage (115 kV) transmission lines will be routed from the transformer gallery in a combined access and transmission tunnel to an outdoor 115/500 kV substation and switchyard near the lower reservoir, from which a double-ended 500 kV transmission line will be aerially routed to the interconnection location. The outdoor 115/500 kV substation/ switchyard size will be approximately 800 feet by 400 feet (7.3 acres). The location, number of circuits, voltage, and configuration of the proposed Project's interconnection with the regional electric utility network will be finalized in conjunction with BPAs transmission planning group. Based on BPAs 2017 Feasibility Study for the proposed Project, the John Day Substation is the preferred connection point for interconnection into BPA's transmission system. A new substation bay and associated improvements may be required to facilitate interconnection at the John Day Substation. However, specific details will be developed and refined during the design phase of the proposed Project.

Refer to FERC FLA Exhibits A, G, and F for additional information.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The Project is primarily located in Klickitat County, Washington, approximately 8 miles southeast of the City of Goldendale, on John Day Dam Road. The proposed Project Boundary encompasses approximately 681.6 acres, most of which are private lands owned by NSC Smelter, LLC. All Project construction will occur either on private lands or within an existing utility right-of-way that is owned by the BPA. Washington Department of Transportation land (SR 14) will be crossed underground by the Project's tunnels.

The Project will occur within Sections 18, 19, 20, 29 and 30, Township 03 North, Range 17 East, W.M.; Klickitat County Assessor parcel numbers:

- 03171800000000—NSC Smelter LLC
- 03171900000200—Washington Department of Transportation
- 03171900000300—NSC Smelter LLC
- 03172000000100—NSC Smelter LLC
- 03172900000200—NSC Smelter LLC
- 03173000001300—NSC Smelter LLC

United States (U.S.) Army Corps of Engineers (USACE), BNSF Railway, and private lands will be crossed by the Project's aerial transmission line within BPA's existing transmission right-of-way. The transmission line will span the Columbia River to the BPA John Day Substation in Sherman County, Oregon, near the City of Rufus.

Refer to FERC FLA Exhibit G and Exhibit F, Figures F-1 through F-3, for location information.

B. Environmental Elements

1. Earth

- a. General description of the site: Flat, rolling, hilly, steep slopes, mountainous, other _____

The upper reservoir and appurtenant features will be located on the Columbia Hills adjacent to a high desert plateau above the Columbia River (upper plateau) at an elevation of approximately 2800 feet above sea level. The lower reservoir, underground powerhouse, access tunnel portal, and appurtenant features will be located on a former flood plain plateau above the Columbia River (lower plateau) at an approximate elevation of 440 feet above sea level.

- b. What is the steepest slope on the site (approximate percent slope)?

The Columbia Hills Anticline, a broad east-west trending anticlinal arch that underlies the Columbia Hills, is the primary geologic feature of the region. A thrust fault associated with the southern limb of the anticline crosses the proposed Project area and trends west-southwest to east-northeast, creating a steep slope between the upper and lower reservoirs. This feature represents the steepest slope(s) within the site. The slope varies over the entire site, but the steepest slopes within the Project area range between approximately 55 percent (along the conveyance alignment) and 85 percent (between the highway and the northwest corner of the lower reservoir), depending on location.

- c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

The U.S. Department of Agriculture Natural Resources Conservation Service soil survey identifies 13 soil map units within the Project study area.

Map Unit Symbol	Map Unit name	Prime Farmland (Y/N)
14B	Rockly very gravelly loam, 2–30 percent slopes	N
21	Rock outcrop-Rubble land complex, 65–90 percent slopes	N
30A	Rockly-Lorena complex, 2–15 percent slopes	N
94A	Lorena silt loam, 10–15 percent slopes	N
105	Ewall loamy sand, 0–8 percent slopes	Y (if irrigated)
108	Ewall-Rock outcrop complex, 0–15 percent slopes	N
721	Rock outcrop-Rubble land-Haploixerolls complex, 30–90 percent slopes	N
724C	Haploixerolls-Rubble land complex, 30–50 percent slopes	N
732	Stacker-Horseflat complex, 30–65 percent slopes	N
775	Horseflat cobbly silt loam, 2–15 percent slopes	N
951	Lorena-Rockly complex, 30–65 percent slopes	N
990	Goldendale-Lorena-Rockly complex, 2–30 percent slopes	N
1032	Goodhoe-Swalecreek-Horseflat complex, 30–65 percent slopes	N

Refer to Federal Emergency Management Agency FLA Exhibit E, Section 6—Geology and Soils, and Appendix B—Wetland and Waters Delineation Report for additional information regarding soils.

Use of Project lands for cultivated agriculture is limited by soil types. A small portion of the Project area to the west side of the lower reservoir is classified as prime farmland if irrigated; however, cultivated agricultural values are otherwise limited. No lands within the Project area have been designated as resource lands (e.g., agriculture, forestry) of long-term commercial significance.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Slope Stability and Mass Wasting

Mass wasting events are common on the northern bank of the Columbia River due to bedrock instability, especially on the southern limb of the Columbia Hills Anticline. Also, freeze-thaw cycles can cause gradual movement. The Washington Department of Natural Resources (DNR) identifies two situations where landslides commonly occur in the general vicinity of the proposed Project: (1) where weak sedimentary layers between Columbia River Basalt flows cause the overlying basalt to slide along the weak, tilted sedimentary interbeds; and (2) where weathered, tilted, and clay-rich volcaniclastic rocks fail either on their own or beneath overlying younger lava flows, transporting both downslope.

The Project Boundary is immediately east of an approximately 700-acre landslide. The DNR does not identify any landslide features in the Project Boundary, nor did they identify evidence of potential new major slides in the vicinity of the proposed Project.

In addition to landslides, accumulations of talus form a broad, irregular apron along the base of the steep slope that runs through the center of the Project area. The talus consists primarily of angular basaltic fragments that have fallen directly from the cliffs and steep slopes above.

It is unlikely that the Project construction will significantly increase the potential for slope stability and mass movement, and Project designs will take into consideration the potential for naturally occurring events in the Project area.

Seismic

The Project site is in an area considered to have low seismic hazard (PNSN 2019). The Columbia Hill Thrust Faults in the vicinity of the proposed Project are listed as seismogenically active, and the two northwest-southeast trending faults that cross the site are suspected of Quaternary movement. It is reportedly “unlikely that the faults in the immediate site vicinity are active or have the potential to produce earthquakes.” (Tetra Tech, 2015). Accordingly, the Project is in Washington State Seismic Design Category B, the category representing areas of the State with the lowest relative seismic risk.

A 2002 geotechnical investigation conducted in the Project site area reported that the primary specific seismic risk for the Project site is potential soil liquefaction and lateral spreading. Groundwater-saturated Holocene sedimentary deposits present beneath some areas of the Columbia Gorge Aluminum (CGA) site reportedly exhibit conditions conducive to seismically induced liquefaction. If these sediments are not supported, such liquefaction would contribute to increased risk of lateral spreading during a strong seismic event.

Refer to FERC FLA Exhibit E, Section 6—*Geology and Soils*, for additional information.

- e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

Preliminary embankment dam volumes have been estimated based on the assumptions that the dams will be concrete-faced rockfill structures with a crest width of 25 feet, side slopes of 1.5H:1V, 10 feet of freeboard, and 20 feet of foundation preparation (undercut). Preliminary material take-off estimates were calculated for each dam structure assuming a crest elevation 10 feet higher than the maximum reservoir elevation. The estimated quantities provided in the following table are preliminary and will be further refined during final Project design.

Dams, Reservoirs, and Embankments

Lower Reservoir Embankment	
Type	Concrete-faced rockfill embankment
Height	Approximately 205 feet (max)
Length	Approximately 6,100 feet (max)
Crest Elevation	590 feet
Cut volume	4,000,000 CY
Fill volume	7,000,000 CY
Lower Reservoir	
Surface Area at Maximum Pool	Approximately 63 acres
Active Storage Capacity	7,100 AF
Maximum Normal Pool Elevation	580 feet
Upper Reservoir Embankment	
Type	Concrete-faced rockfill embankment
Height	Approximately 175 feet (max)
Length	Approximately 8,000 feet (max)
Crest Elevation	2,950 feet
Cut volume	8,000,000 CY
Fill volume	5,000,000 CY
Upper Reservoir	
Surface Area at Maximum Pool	Approximately 61 acres
Active Storage Capacity	7,100 AF
Maximum Normal Pool Elevation	2,940 feet
Total Reservoir Cut Volume	12,000,000 CY
Total Reservoir Fill Volume	12,000,000 CY

AF = acre-feet; CY = cubic yard

The powerhouse will be underground between the upper and lower reservoirs in order to minimize the rock cover needed for tunnels. The location will be largely dictated by maximum unit centerline elevation (submergence below minimum normal lower reservoir level), geological characteristics, construction constraints and cost-related preferences associated with tunneling, and an acceptable hydraulic layout and configuration of the water conveyance tunnels. Preliminary estimates indicate that the powerhouse cavern (approximately 0.83 acre) will require approximately 200,000 cubic yards of excavation and the step-up transformer cavern (approximately 0.48 acre) will require approximately 46,700 cubic yards of excavation.

Other Project features that will require site excavation, fill, and/or grading include (but are not limited to) underground tunnels, substation/switchyard construction, utility infrastructure tie-ins, internal access roads, temporary construction laydown/parking areas, and construction access road extensions. All Project features will be further evaluated during final design. The final arrangement of Project features will be based on required studies of topography, geology, hydrology, seismic hazard consideration, functional requirements, and appearance. Therefore, the preliminary area and quantities of excavation, fill, and grading are subject to change.

Clean imported fill material would be obtained from an agency approved/permitted source.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

The Project area does not receive much rainfall, which generally minimizes potential erosion from water sources. However, over long periods these natural processes may result in erosion. Potential water erosion of soils at both the proposed upper and lower reservoirs could loosen rock and soil in the bluffs above the lower reservoir. Surface and near-surface flow could erode soils and weaken rock (such as during freeze-thaw cycles). Additional erosion during Project construction could result from windblown dust.

Refer to FERC FLA Exhibit E, Section 6—*Geology and Soils*, for additional information.

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

The upper reservoir would not likely have any impervious surface other than the reservoir itself, which is not expected to contribute to surface water runoff. A preliminary estimate of 50-75 percent of the Project area for the lower reservoir, not including lower reservoir footprint, may be covered with impervious surfaces (e.g., paved internal access road to tunnel portals, buildings, parking) upon Project completion.

- h. Proposed measures to reduce or control erosion or other impacts to the earth, if any:

Erosion Control

Both Washington state law and the federal CWA require NPDES permitting for construction activities. Erosion potential will be minimized through development of a Project-specific SWPPP and Erosion and Sediment Control (ESC) Plan that will be implemented during all aspects of construction. The SWPPP will be prepared consistent with Ecology Publication Number 18-10-044, *Stormwater Management Manual for Eastern Washington (August 2019)*. The ESC Plan will describe requisite measures to ensure that potential impacts are minimized and will include the following best management practices (BMPs), as well as other applicable BMPs endorsed by the State of Washington:

- Minimize ground surface disturbance.
- Protect areas of exposed soil.
- Install silt fencing, coir logs, and/or other applicable BMPs around disturbed areas and soil stockpiles.
- Revegetate as soon as possible after ground disturbance.

The ESC Plan will also address practices to be established during Project construction and operation to minimize the potential for generating windblown dust from Project activities. Special focus in the ESC Plan will be given to addressing earthworks in soils having the highest wind erosion risk in the Project area.

Seismic Evaluation

Geotechnical and geological studies will be performed in the next phase of Project engineering design, which will evaluate areas subject to potential liquefaction and lateral spreading. The results of these investigations will be conducted in conjunction with Project design details in preparation for

construction. Future Project engineering designs will include measures to ensure safety of Project structures pursuant to FERC Dam Safety protocols.

2. Air

- a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

During construction, emissions may be generated by internal combustion engines powering vehicles and construction equipment, temporary generators, and dust associated with site grading activities and driving on unimproved site access roads. Construction activities would be dispersed over a multi-acre site, and associated emissions would be temporary and intermittent over a 5-year construction period. It is not anticipated that the completed Project would generate air emissions.

- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

There are no known off-site sources of emissions or odor that would affect Project design, construction or operation.

- c. Proposed measures to reduce or control emissions or other impacts to air, if any:

During site preparation and construction, contractors will take reasonable precautions to minimize dust emissions, if present. Reasonable precautions may include, but may not be limited to, reducing vehicle speeds, watering/dust suppression, cleaning vehicle undercarriages before exiting the site to prevent track-out of mud or dirt onto paved public roadways, street sweeping/vacuuming, and/or other applicable measures to minimize sources of dust. Project-specific measures will be identified in a construction SWPPP that will be prepared in accordance with NPDES permit requirements and the current Ecology *Stormwater Management Manual for Eastern Washington*.

Negligible to no emissions are anticipated as a result of the completed Project. Therefore, no additional measures are proposed.

3. Water

- a. Surface Water:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

The following surface water bodies were identified during a May 2019 field delineation within the Project footprint.

Streams/Seep

S7 Feature S7 is located near the upper reservoir. This feature is an ephemeral stream channel that is 16 to 24 inches wide, 1 to 3 inches deep, and extends approximately 995 feet into the Project Boundary. Evidence of an ordinary high water mark (OHWM) included an incised bed and bank, sediment sorting, and debris wracking. Substrate consists of small cobbles, gravels, and fines. Although no flowing water was observed, much of the substrate was covered with algal matting. This stream connects to Swale

Creek, a perennial tributary of the Klickitat River approximately 2.4 miles north of the Project area.

- S8** Feature S8 is located near the upper reservoir. This feature is an ephemeral stream channel that is 12 to 24 inches wide, 1 to 3 inches deep, and extends approximately 990 feet into the Project Boundary. Evidence of an OHWM included an incised bed and bank, sediment sorting, and debris wracking. Substrate consists of small cobbles, gravels, and fines. Although no flowing water was observed, several pockets of standing water were observed, and much of the substrate was covered with algal matting. This stream connects to Swale Creek, a perennial tributary of the Klickitat River approximately 2.4 miles north of the Project area.
- S17** Feature S17 crosses Highway 14 near the lower reservoir. This is an intermittent stream channel that is about 24 inches wide, 1 to 3 inches deep, with substrate consisting of mud and fine gravels. Evidence of an OHWM included a defined bed and bank and sediment sorting. The channel begins above the highway and is conveyed beneath the highway through a metal culvert. Flowing water 1 to 3 inches deep was observed above the highway; however, no water was observed exiting the culvert at the outlet on the southeast side of the highway. Below the culvert outlet, the stream channel resembled a grassy swale that lacked the OHWM indicators observed above the highway, suggesting the culvert may be damaged and the stream flow goes subsurface beneath the highway. Therefore, this stream lacks a surface connection to the Columbia River.
- S24** Feature S24 appears to be a groundwater seep located along the excavated hillside above Highway 14 near the lower reservoir. Water flowed down the hillside into a roadside drainage ditch and into a culvert that conveyed the water to east side of the highway. No flowing water was observed existing the culvert outlet. This seep lacks a surface connection to the Columbia River as most of the flow goes subsurface near State Route 14.

Ponds

- P1** Feature P1 is located near the upper reservoir, just outside the Project Boundary. The pond appears to be artificially created to support cattle grazing on the surrounding property. At the time of the May 2019 delineation, the pond appeared to be nearly full. Review of Google Earth aerial imagery suggests that the pond partially dries up but retains a small amount of water throughout the year. The pond is approximately 0.2 acre in size. This pond appears to be isolated as it does not have an outlet or surface connection to feature S7.
- P2** Feature P2 is located near the upper reservoir and appears to be artificially created to support cattle grazing on the surrounding property. At the time of the May 2019 delineation, the pond appeared to be about half full. Review of Google Earth aerial imagery suggests that the pond dries up entirely most years. The pond is approximately 0.03 acre in size. This pond appears to be isolated as it does not have an outlet or surface connection to feature S7.

Wetland

- W6** Feature W6 is a palustrine emergent wetland on an abandoned roadbed upslope of feature S17. This small wetland is approximately 123 square feet (0.003 acre) and originates from a groundwater seep on a cut bank above an abandoned roadbed. This

wetland appears to be isolated. Water from the seep flows down the roadbed for about 20 feet before infiltrating into the soil. No surface connection to S17 was observed.

The following surface water features were desktop reviewed. These surface waters are located along the existing BPA transmission line right-of-way within the Project Boundary.

Feature ID	Feature Name	NHD Classification	NWI Classification
S20	Columbia River	Perennial Lake/Pond	Lacustrine Limnetic, Unconsolidated bottom, Permanently flooded, Diked/Impounded (L1UBHh)
S21	Scott Canyon	Intermittent water course	Riverine, Intermittent, Streambed, Seasonally flooded (R4SBC)
S22	Gerking Canyon	Intermittent water course	Riverine, Intermittent, Streambed, Seasonally flooded (R4SBC)
S23	Unnamed canal/ditch	Intermittent water course	Riverine, Intermittent, Streambed, Seasonally flooded (R4SBC)

Sources: USGS 2019; USFWS 2019a

NHD = National Hydrography Dataset; NWI = National Wetlands Inventory

Refer to FERC FLA Appendix B—*Wetlands and Waters Delineation Report* for additional information.

- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Construction of the upper reservoir will result in approximately:

- 890 linear feet of permanent impact to stream S7;
- 75 linear feet of permanent impact to stream S8;
- 0.03 acre of permanent impact to pond P2 (entire feature); and
- 800 linear feet of temporary impact to stream S8.

The Columbia River (S20), Scott Canyon (S21), Gerking Canyon (S22), and an unnamed canal/ditch (23) will not be impacted by the Project as they would be aerially spanned by the existing BPA aerial transmission line.

- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

Preliminary estimates of permanent and temporary surface water fill include:

- approximately 16.5 CY of permanent fill in stream S7
- approximately 1.5 CY of permanent fill in stream S8
- approximately 15 CY of temporary fill in stream S8
- approximately 97 CY of permanent fill in pond P2 (entire feature)

Fill materials would consist of clean backfill materials and/or clean imported fill from an agency-approved source.

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

The water supply for the initial fill and continuous make-up water will be purchased from KPUD. A new Project water fill line will connect to a new KPUD water supply service connection in a vault on the Project boundary. KPUD owns a certified 15,479-acre-foot-per-year water right from the former CGA smelter (No. S3-00845C, No. G4-01130C) that allowed a maximum of 34.63 cfs for industrial use. This water right was gifted to KPUD by a quitclaim deed executed on December 22, 2005. After legal transfer of ownership, this water right was amended for municipal purposes. As mandated by Ecology, the water right must be put to beneficial use by 2028. Subsequently, by Washington State law passed unanimously and signed by Governor Christine Gregoire on March 30, 2012, KPUD is expressly authorized to use this water right for a pumped storage generating facility and to sell water for pumped storage projects.

The Project is expected to require 7640 acre-feet of water for the initial filling and an estimated 260 acre feet per year for makeup water.

Refer to FERC FLA Exhibit F, *Preliminary Supporting Design Report*, and Appendix K—*Klickitat County PUD Correspondence* for additional information.

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

Based on review of Federal Emergency Management Agency digital flood data for Klickitat County and flood insurance rate map No. 5300990450B, the Project site is located in uplands, outside of the Columbia River 100-year floodplain.

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

Not applicable. The Project does not involve discharge of waste materials to surface waters. The reservoirs will be lined to prevent seepage/leakage.

b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

The Project does not include withdrawing groundwater or discharging water to groundwater.

Due to the semi-arid classification for the Project area and the short duration of construction prior to placement of an impermeable liner in each of the upper and lower reservoirs, the potential for a discernible effect on the shallow aquifers at each location during construction is minimal. An estimate of potential leakage from the tunnels and reservoirs with liner systems has not been completed, and is not included, but is assumed to be small with inclusion of impermeable synthetic reservoir and tunnel liner systems.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the

number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

It is anticipated that the completed Project will include a single on-site domestic sewage system to serve personnel at the lower reservoir. Specific system details (e.g., size, type, location) are not known at this time, but will be developed through the final Project design process.

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Any surface water runoff generated by the completed Project will be associated with aboveground Project elements, including the reservoir embankments, paved roads, parking, Project substation and associated containment area, and possible improvements at the John Day Substation. It is expected that any surface water runoff that is generated by these features would accumulate within the reservoirs (minimal) and disperse to adjacent undeveloped areas to preserve existing site hydrology. In the vicinity of the upper reservoir, potential surface water runoff would be expected to continue to flow to existing ephemeral stream channels outside the Project development site and follow existing flow paths.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

It is not anticipated that waste materials will enter ground or surface waters as a result of the Project. However, a Hazardous Substances Spill Prevention and Cleanup Plan will be developed to address potential issues if a hazardous substance spill was to occur during construction, operations, or maintenance. This plan will specify materials handling procedures and storage requirements, and identify spill cleanup procedures for areas and processes in which spills might occur.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

As described in Section B.3.a.1 of this checklist, streams S7 and S8 are ephemeral stream channels. An ephemeral stream is located above the water table and only flows in response to precipitation events. Pond P2 is ephemeral as well since it fills in response to precipitation events and completely dries up most years. Construction of the upper reservoir will therefore result in the reservoir capturing and retaining a limited amount of rainfall that would otherwise reach these stream channels and pond. However, at about 90 acres, the upper reservoir will occupy about 0.05 percent of the Lower Swale Creek watershed (HUC 170701060403), which is about 18,700 acres. Therefore, the overall impact to runoff and stream flow within the watershed will be minimal.

Precipitation on the reservoir water surfaces will represent the only natural reservoir recharge. The reservoirs will be lined so that the reservoirs will not leak, therefore any anticipated water losses are associated with evaporation. Since the reservoirs are enclosed on all sides by an embankment, surface water runoff will not enter or be intercepted by the reservoirs.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern

impacts, if any:

Construction

Potential erosion and sediment that may be generated within the Project site during construction ground disturbance activities will be managed through development and implementation of a Project SWPPP and ESC Plan. These plans will include ESC information, locations where BMPs will be implemented, and site inspection/maintenance requirements that contractors will follow throughout construction.

Impact avoidance and minimization measures include implementation of BMPs that will be incorporated into the design/pre-construction, construction, and operational phases of the Project to avoid and/or minimize potential impacts to aquatic resources and habitat. Proposed measures include the following:

- Avoid construction impacts to aquatic habitat wherever possible (including the intermittent/ephemeral streams and stock ponds).
- Use water diversion structures to direct dirty water from the work zone to a sediment control area.
- Install silt fencing, geotextile cloth, straw wattles, berms, or other sediment control measures near waterbodies, including ephemeral waterbodies.
- Store soil, substrate, and building materials in stable areas away from waterbodies.
- Stabilize excavated materials and areas denuded of vegetation using temporary erosion control blankets, biodegradable mats, planted vegetation, or other applicable erosion control techniques.
- Conduct stormwater and environmental monitoring.
- Repair areas that are identified as potential sediment sources.
- Adhere to appropriate construction operating windows for instream work.

It is anticipated that potential ESC impacts on waterbodies will be appropriately mitigated by following industry standard BMPs identified in the SWPPP and ESC Plan.

The Applicant will also develop a Hazardous Substances Spill Prevention and Cleanup Plan to address potential issues resulting from spills of hazardous substances during construction, operations, or maintenance. The Hazardous Substances Spill Prevention and Cleanup Plan will specify materials handling procedures and storage requirements, and identify spill cleanup procedures for areas and processes in which spills may potentially occur. The plan will standardize process operations procedures and employee training in an effort to minimize accidental pollutant releases that could contaminate surface water, groundwater, or stormwater runoff.

A Spill Prevention Control and Countermeasures (SPCC) plan will be created in the future if more than 1,320 gallons of petroleum is projected to be located on site. The SPCC plan would identify a communication plan around spills, assess spill containment capacity and coverage, require change management communication, evaluate training requirements, and address other regulatory criteria.

Surface Waters

The Applicant's objectives are to avoid or minimize all potential surface water impacts from Project construction and operations within and near the proposed Project area. The permanent impacts to streams S7 and S8 are relatively minor as they represent about 6 percent and 3 percent, respectively, of each stream's overall length. As streams S7 and S8 are likely jurisdictional waters

of the United States, Project permitting will include application for applicable state and federal permits. In doing so, the Applicant will be required to identify proposed avoidance and mitigation measures for potential Project impacts to jurisdictional waters. Temporary impacts to stream S8 from the construction laydown area represents about 27 percent of the stream's overall length, but the site will be restored upon completion of construction. Pond 2 is an artificially created pond that is not a regulated feature under the Klickitat County Critical Areas Ordinance. The Project will not impact any wetlands within or adjacent to the Project area. Potential impacts to the Columbia River have been minimized since the Project will operate as an off-channel, closed-loop system. All other waterbodies in the Project Boundary will be completely avoided and will not be impacted by Project construction or operations.

Water Source

The Project will purchase water from KPUD for all Project operations. The KPUD water right was historically used by the CGA smelter which had a greater withdrawal rate than what will be used by the proposed Project. This should protect existing surface and groundwater resources, as no additional allocations will be required.

Facility Design and Management

Project site design will be reviewed for conformance with stormwater management and/or treatment requirements under the Ecology *Stormwater Management Manual for Eastern Washington* (August 2019), as applicable.

Substation design and improvements will incorporate secondary spill containment infrastructure, as applicable.

The reservoirs will include physical features to minimize the capture of surface water runoff and preserve hydrology associated with the area. Specifically, overland flow will be directed away from Project reservoirs and allow normal infiltration to occur outside of the two reservoir footprints.

Because the Project is a closed-loop system with no outfall to any surface waterbody, the Project would not have any water quality effect on the Columbia River or other surface waterbodies. If drainage of the lower reservoir were needed for maintenance, the water would be pumped into the upper reservoir and vice versa. Only one reservoir will be filled to capacity at any given time.

4. Plants

- a. Check the types of vegetation found on the site:

- deciduous tree: alder, maple, aspen, other: various introduced or invasive species
 evergreen tree: fir, cedar, pine, other: western juniper
 shrubs
 grass
 pasture
 crop or grain
 orchards, vineyards or other permanent crops
 wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
 water plants: water lily, eelgrass, milfoil, other
 other types of vegetation

Refer to FERC FLA Exhibit E, Section 3—*Fish, Wildlife, and Botanical*, and Appendix C—*Botanical Survey Report* for additional information.

b. What kind and amount of vegetation will be removed or altered?

The following table outlines anticipated permanent and temporary (e.g., laydown areas) Project impacts on vegetation types.

Vegetation Type ^a	Temporary Impacts (acres)	Permanent Impacts (acres)
Columbia Plateau Scabland Shrubland	0	0
Columbia Plateau Steppe and Grassland	7.5	20.8
Columbia Plateau Western Juniper Woodland and Savanna	0.8	0.0
Inter-Mountain Basins Big-Sagebrush Steppe	8.1	24.1
Inter-Mountain Basins Cliff and Canyon	0.1	0.0
Introduced Upland Vegetation & Annual Grassland	10.6	35.9
Introduced Upland Vegetation & Annual Grassland w/Rock Outcroppings	26.5	0.0
Introduced/Invasive Wooded	0	0.4
Developed/Disturbed	0.8	9.3

^a Vegetation types mapped based on 2015 field survey and classified using WNHP (2015) classifications

c. List threatened and endangered species known to be on or near the site.

Analysis of suitable habitat and known occurrences for federal- and state-listed plant species determined that 14 state-listed species have the potential to occur in the Project vicinity. No federally listed species were identified as having potential to occur in the vicinity. On May 14 and 15, 2019, a botanical survey was performed for the following species:

- Wormskield's northern wormwood (*Artemisia campestris* var. *wormskieldii*)—state endangered
- California broomrape (*Orobanche californica* ssp. *grayana*)—state endangered
- Obscure buttercup (*Ranunculus triternatus*)—state endangered
- Few-flowered collinsia (*Collinsia sparsiflora* var. *bruceae*)—state threatened
- Inch-high rush (*Juncus uncialis*)—state threatened
- Douglas' draba (*Cusickiella douglasii*)—state threatened
- Smooth desert-parsley (*Lomatium laevigatum*)—state threatened
- Smooth goldfields (*Lasthenia glaberrima*)—state threatened
- Hot-rock penstemon (*Penstemon deustus* var. *variabilis*)—state threatened
- Common bluecup (*Githopsis specularioides*)—state sensitive
- Baker's linanthus (*Leptosiphon bolanderi*)—state sensitive
- Nuttall's quillwort (*Isoetes nuttallii*)—state sensitive
- Suksdorf's desert-parsley (*Lomatium suksdorffii*)—state sensitive
- Western ladies' tresses (*Spiranthes porrifolia*)—state sensitive

The botanical survey found the study area contained suitable habitat for 8 of the 14 rare plant species surveyed. However, no individuals from the 14 target species or other sensitive plant species were observed.

Refer to FERC FLA Appendix C—*Botanical Survey Report* for additional information.

- d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

A Vegetation Management and Monitoring Plan (VMMP) has been developed to establish programs needed to effectively guide management of vegetation within the Project area, now and in the future. The VMMP is intended to cover all Project-related construction, operation, and management activities. Specific vegetation management and monitoring practices for native vegetation and noxious weeds are presented. The VMMP establishes goals for managing vegetation within the Project Boundary, defines specific activities for processes or measures to meet those goals, and describes how these activities are to be implemented. The VMMP will be further developed in consultation with resource agencies as the Project moves through the FERC licensing process.

The following project management and engineering measures will be implemented to reduce potential impacts to vegetation:

- Prior to Project construction, a formal invasive plant survey will be conducted to establish baseline environmental conditions. The survey will develop a list of target invasive species to be surveyed, and identify the location and extent of any target species. This information will be used to aid in the development of a comprehensive plan to control the spread of invasive plants within the Project boundary and that will maximize the effectiveness of restoration efforts following ground disturbance. The survey will be more fully described in the VMMP as it is further developed.
- Prior to construction, any sensitive plants within areas to be disturbed will be surveyed to either prevent or mitigate adverse effects on such species.
- Construction and operations activities will be planned and implemented to avoid disturbance to existing native and/or sensitive plant communities and prevent the spread of noxious weeds, as described in the VMMP.
- All temporarily disturbed areas will be revegetated as outlined in the VMMP.
- Once operational, the Project facilities will be operated in a manner that reduces disturbance to plant communities.
- Measures will also support protection and enhancement of special status species; however, there are no known special status plants within the Project footprint.

Refer to FERC FLA Appendix E—*Vegetation Management and Monitoring Plan* for additional information.

- e. List all noxious weeds and invasive species known to be on or near the site.

Previous site investigations observed the following introduced invasive and noxious weed species within the Project area:

- cheatgrass (*Bromus tectorum*)
- Russian olive (*Elaeagnus angustifolia*)
- Himalayan blackberry (*Rubus armeniacus*)
- common fiddleneck (*Amsinckia intermedia*)
- quackgrass (*Elymus repens*)

- herb-Robert (*Geranium robertianum*)—Washington State Class B weed
- Dalmatian toadflax (*Linaria dalmatica*)—Klickitat County Class B weed
- rush skeletonweed (*Chondrilla juncea*)—Klickitat County Class B weed
- Canada thistle (*Cirsium arvense*)—Klickitat County Class C weed

5. Animals

- a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site.

Examples include:

birds: hawk, heron, eagle, songbirds, other: falcon, woodpecker, sparrow, waterfowl, and others

mammals: deer, bear, elk, beaver, other: coyote, fox, bat, and multiple rodent, feline and other species

fish: bass, salmon, trout, herring, shellfish, other _____

Numerous avian species have been identified within the Project study area and the greater Project region. Species identified within the Project area include, but are not limited to: water fowl and water birds (primarily gulls and Canada geese), prairie falcon, and golden eagles (Washington candidate species). Year-round and seasonal distributions of other avian species also occur within the area.

The Project area is inhabited by a variety of common terrestrial wildlife species, and provides a range of habitats between the lower and upper reservoir areas.

There is no fish habitat within the Project boundary aside from the Columbia River, which is aerially spanned by the Project's use of the BPA transmission right-of-way. The Columbia River includes at least 52 documented fish species, including threatened and endangered species, as well as several amphibian species that may occur in the vicinity. However, no Project work is proposed within the Columbia River or adjacent riparian corridor. Therefore, fish species, amphibians, and habitats directly associated with the Columbia River are not discussed herein.

Tadpoles were observed in stock pond P2 in the upper reservoir area during the 2019 wetland delineation. As such, there is potential amphibian habitat associated with the intermittent/ephemeral streams. This amphibian habitat would be seasonal, and primarily low quality, located within the intermittent/ephemeral channels, and on the fringes of the stock ponds in the upper reservoir area.

Refer to FERC FLA Exhibit E—*Fish, Wildlife and Botanical* for additional information regarding avian, terrestrial and aquatic species/habitats documented within the Project boundary, including the Columbia River.

- b. List any threatened and endangered species known to be on or near the site.

Federal

Of the federal Endangered Species Act species within Klickitat County, Washington and Sherman County, Oregon, only the endangered gray wolf (*Canis lupus*) could be present in the Project vicinity because they are habitat generalists. Four threatened species, the northern spotted owl (*Strix occidentalis*), yellow-billed cuckoo (*Coccyzus americanus*), Canada lynx (*Lynx canadensis*), and Oregon spotted frog (*Rana pretiosa*), are unlikely to occur in the Project boundary because their

habitat is not present.

State

Additional state-listed wildlife species within Klickitat County, Washington and Sherman County, Oregon that could potentially occur within the Project boundary include the Ferruginous hawk (*Buteo regalis*)—Washington threatened, western grey squirrel (*Sciurus griseus*)—Washington threatened, gray wolf—Washington endangered, and Mardon skipper (*Polites mardon*)—Washington endangered.

Refer to FERC FLA Exhibit E, Section 3—*Fish, Wildlife and Botanical*, for additional discussion.

- c. Is the site part of a migration route? If so, explain.

The Project site is not part of a specific known migration route, but it is located within the Pacific Flyway, which is a major north-south route of travel for migratory birds in the Americas extending from Alaska to Patagonia. This migration routes would not be altered or impacted by the Project.

- d. Proposed measures to preserve or enhance wildlife, if any:

This following provides a summary of project management and engineering measures that will be incorporated into the design/pre-construction, construction, and operational phases of the Project to address potential impacts on wildlife, including rare, threatened, and endangered wildlife species. The Applicant will continue to develop and refine these protection measures in consultation with regulatory agencies.

- Risk assessment of activity and timeline to determine the impacts of the Project during breeding and non-breeding seasons. Based on risk assessment, develop construction timing and scheduling limits (e.g., only allowing construction between 7 am and 6 pm) to minimize impacts to crepuscular foraging and nocturnal activity.
- Wildlife studies:
 - Raptors—pre-construction raptor nest surveys, monitoring of golden eagle and prairie falcon use, and bald eagle monitoring. Surveys will focus on known historic nest locations, including the historic golden eagle and prairie falcon nests located near the Project area. See the FERC FLA Appendix D for detailed raptor survey methods.
 - Bats—the Project is not proposing pre-construction bat surveys but will instead rely on the surveys conducted for the nearby wind farms to document bat presence.
- Develop nest protection measures with agencies, if necessary.

Design and Construction Protection Measures

- Design raptor-safe transmission line construction (i.e., ensure that the transmission line installation complies with Avian Power Line Interaction Committee guidelines for avian protection [APLIC and USFWS 2005] and the Suggested Practices for Avian Protection on Power Lines, The State of the Art in 2006 [APLIC 2006] to protect avian species from electrocution as a result of landing or perching on transmission and distribution lines).
- Habitat—the Project transmission line will utilize an available space on an existing BPA transmission right-of-way for the Columbia River crossing and the connection to the John Day substation in Oregon. Impacts on priority habitats of talus and cliffs will be avoided since the

penstock, access tunnel, and emergency evacuation tunnel will be constructed underground using directional drilling techniques.

- Reducing habitat loss by designing the Project to use existing access roads wherever possible.
- Noise minimization by avoiding blasting within 0.5 mile of active nests.
- Raptor nest monitoring to ensure construction is avoiding protected/sensitive areas.
- Biological training program to inform employees of sensitive biological resources.
- Mitigate for habitat loss by conserving a compensatory mitigation parcel approved by the U.S. Fish and Wildlife Service and the Washington Department of Fish and Wildlife. The parcel will be of similar quality as the golden eagle foraging habitat impacted by the Project's permanent features. A mitigation ratio of 2:1 acres will be used for habitat impacts of the upper reservoir area; a ratio of 1:1 acres will be used for the lower reservoir area because of the poor quality, degraded state.
- Manage traffic by implementing a speed limit to reduce wildlife injury due to collisions.

Operation Protection Measures

- Carcass removal program removes carcasses of livestock, big game, and other animals from the Project area that may attract scavenging wildlife, foraging eagles, or other raptors to limit attraction of scavenging wildlife.
- Reduce attraction for migratory birds by using bird deterrents, vegetation management, and/or exploring the use of plastic shade balls to cover reservoirs.
- Reduce attraction for mammals (prey species) by using deterrents.
- Implement a wildlife incident reporting system to disclose issues to agencies.
- Apply dust palliatives or suppressants to unpaved roads to reduce dust.
- Manage light pollution to reduce impacts on migrating and nocturnal birds.
- Reservoirs will be fenced to minimum height of eight feet with chain link fence. Weather permitting, fences will be monitored on at least a weekly basis when staff are present at the reservoirs, and any damage (e.g., vandalism) will be fixed immediately as it is practicable. Any damage, or occurrences of injury or mortality to wildlife species as a result of fencing will be documented and reported to the Washington Department of Fish and Wildlife. All fences associated with the Project will also be marked with vinyl strips and/or reflective tape to reduce avian collision risks.
- Operate Project facilities in a manner that minimizes disturbance to wildlife populations.

The Project is closed-loop and off-river, and as such will not directly affect naturally occurring aquatic resources during construction or operations. There will be no direct effects to fish due to Project construction activities, as there is no fish habitat within the Project Boundary (the Columbia River is crossed aerially by the BPA right-of-way within the Project Boundary).

Refer to FERC FLA Appendix D—*Wildlife Management Plan* for more detailed information regarding proposed survey and monitoring methodologies, reporting, and management measures.

- e. List any invasive animal species known to be on or near the site.

No avian or terrestrial introduced or non-native animal species have been identified within the Project site. Introduced and non-native aquatic species are documented within the Columbia River. Refer to FERC FLA Exhibit E, Section 3—*Fish, Wildlife and Botanical*, for additional information.

6. Energy and Natural Resources

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electrical service will be used to meet completed Project energy needs for general facility operations (e.g., lighting, office operations, security, etc.). The main electrical service will be from the main transmission line interconnection to/from the BPA John Day substation. A connection to the KPUD electrical service would be used as a stand-by station service connection.

- b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

The Project will not affect potential use of solar energy on adjacent properties.

- c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

A key purpose of the overall Project is to provide balancing services and renewable energy flexible capacity to utilities in the Pacific Northwest and potentially California to decarbonize the electric power system cost-effectively.

The powerhouse is planned to include three reversible, variable speed pump/turbine motor/generator units, each having a rated generating capacity of 400 MW for a total installed rated capacity of 1,200 MW. The Project will utilize Francis-type variable-speed, pump-turbine units with an overall cycle efficiency for pumping and generating of approximately 80 percent and a power factor of 0.9. As a closed-loop pumped storage plant, the plant capacity (1,200 MW) will be dependable capacity. The upper reservoir will be capable of storing approximately 14,745 megawatt-hours of energy. The rated (average) gross head of the Project is 2,360 feet and the estimated maximum discharge is 8,280 cubic feet per second. The estimated annual generation for 8 hours a day, 7 days a week is 3,500 gigawatt-hours. Economic modeling, cost-benefit analysis, system need, and market will determine the optimal size and configuration for Project operations.

7. Environmental Health

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? If so, describe.

- 1) Describe any known or possible contamination at the site from present or past uses.

The former CGA smelter generally operated from 1969 to 2003. Various studies over the years included assessments of the entire CGA smelter property. As part of an Agreed Order (May 1, 2014) among Ecology, the current site owner NSC Smelter, and Lockheed Martin Corporation ("Potentially Liable Persons"), a Remedial Investigation and Feasibility Study (RI/FS) was initiated at the Site and the PLPs submitted a Draft RI/FS Report to Ecology in January 2019.

The objective of the RI/FS included characterization of the nature and extent of the contamination associated with operation of the smelter, assesses human and ecological risks, and propose response measures to mitigate any identified adverse risks. The only waste management unit associated with the CGA smelter operations that is located within the Project boundary is the West Surface Impoundment (WSI; also known as Solid Waste Management Unit 4).

The lower reservoir is located over the footprint of the WSI (Solid Waste Management Unit 4). The WSI was used to concentrate emission control wastewater through evaporation and for storage and disposal of air emission control sludge. Testing conducted by the CGA smelter operator in 1997, when compared to Ecology regulations, confirmed that the materials placed in the WSI were non-hazardous and non-dangerous wastes. In September 2004, the WSI was closed under Resource Conservation and Recovery Act (Ecology 2014b). Closure was conducted through consolidation and grading of the WSI contents and placement of an engineered Resource Conservation and Recovery Act cap consisting of a sand layer, a geosynthetic clay layer, 30-millimeter polyvinyl chloride geomembrane liner, a geotextile drainage layer, and soil cover (Ecology 2014a, 2019c). At the time of closure, about 89,000 cubic yards of material were estimated within the WSI. A Closure and Post-Closure Plan was prepared in November 2004, including provisions for long-term maintenance and groundwater monitoring (Parametrix 2004). In November 2005, Ecology accepted certification for WSI closure (Ecology 2019c).

Groundwater impact attributable to the operations of the CGA smelter was documented in the Draft RI/FS, noted above, in the Uppermost Aquifer beneath the WSI and the southernmost portions of the Project. The Uppermost Aquifer is termed an Area of Concern in documents related to the CGA Smelter. There are no structures planned for the Project that would be directly affected by the contaminated groundwater in the Uppermost Aquifer and there are no plans to use that groundwater for the Project.

- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

As noted above, the lower reservoir for the Project is located coincident with the WSI. The proposed Project design includes removal of the entire WSI (liners and contents of the WSI) because they are unsuitable for reservoir and embankment construction. In addition, select groundwater monitoring wells required for monitoring of the Uppermost Aquifer will be impacted by construction of the lower reservoir and ancillary facilities. The Applicant received approval from Ecology to enter into a Prospective Purchaser Agreement to facilitate removal of the WSI, as well as decommissioning/replacement of groundwater monitoring wells.

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

It is possible that toxic or hazardous chemicals (e.g., hydraulic fluid, fuel oil, vehicle, and equipment fuel) may be stored onsite during project development and construction. The completed Project will not produce toxic or hazardous chemicals. It is not anticipated that the Project would store toxic or hazardous chemicals other than commercially available cleaning supplies or small quantities of toxic or hazardous chemicals required for maintenance activities.

The Applicant will develop a Hazardous Substances Spill Prevention and Cleanup Plan to address potential issues resulting from spills of hazardous substances during construction,

operations, or maintenance (see Paragraph 5 below). The Hazardous Substances Spill Prevention and Cleanup Plan will specify materials handling procedures and storage requirements, and identify spill cleanup procedures for areas and processes in which spills may potentially occur. The plan will standardize process operations procedures and employee training in an effort to minimize accidental pollutant releases that could contaminate surface water, groundwater, or stormwater runoff.

4) Describe special emergency services that might be required.

It is not anticipated that the Project would require special emergency services. However, an Emergency Action Plan (EAP) will be developed and submitted in association with FERC dam licensing requirements. The EAP will identify potential emergency conditions at the facility and specify preplanned actions to be followed in the event of an emergency. The EAP will specify actions that will be taken to moderate or alleviate potential issues at the dams. It will contain procedure and information to assist in issuing early warning and notification messages to emergency management authorities of an emergency situation. It will also include inundation maps to show critical areas for action in case of an emergency.

5) Proposed measures to reduce or control environmental health hazards, if any:

Hazardous Substances Spill Prevention and Emergency Cleanup Plan

The Applicant will develop a Hazardous Substances Spill Prevention and Emergency Cleanup Plan (SPECP) to address potential issues that may result from spills of hazardous substances during construction, operations, or maintenance if they were to occur. The SPECP will:

- Describe the Project and nature of operations at the site;
- List the general types of chemicals in use and storage at the Project;
- Include a map indicating hazardous substance storage areas;
- Specify materials handling procedures and storage requirements; and
- Identify spill cleanup procedures for areas and processes in which spills may occur.

Institutional BMPs associated with the SPECP will include:

- Training of key personnel in the implementation of the SPECP;
- Posting of summaries of the SPECP around the Project site to facilitate implementation of response actions; and
- Revising the SPECP as conditions or operations change at the Project (e.g., construction to operation).

Operational BMPs associated with the SPECP will include:

- Notifying regulatory agencies, including local authorities, in accordance with applicable federal and state regulations if a spill may reach surface water or groundwater; and
- Locating emergency spill containment and cleanup kits (appropriate to the hazardous substances in use) in areas where they are easily accessed and used, with locations modified or moved as operations and activities change/progress at the Project.

Spill Prevention Control and Countermeasures Plan

As previously discussed in section B.3.d of this checklist, a SPCC plan will be created in the future if more than 1,320 gallons of petroleum is projected to be located on site.

Prospective Purchaser Agreement

The Washington Model Toxics Control Act, WA RCW Chapter 70.105D, provides a mechanism whereby Ecology and the Washington Attorney General's Office (AGO) can enter into a settlement with a person not currently liable at a facility and who proposes to purchase, redevelop, and reuse that facility. This type of settlement is termed a prospective purchaser agreement (PPA) that is implemented and enforced by means of a consent decree between the AGO and the settling party. As part of the process the Applicant actively engages agencies in a consultation process in order to enter into a Prospective Purchaser Consent Decree (PPCD) with Ecology and the AGO.

Ecology sent a letter to the Applicant 20 April 2020, supporting the PPA for the Project. Following submittal of the FLA, the Applicant will be submitting to Ecology and the Washington AGO a PPCD detailed proposal (WAC 173-340-520) describing current environmental conditions at the WSI, and detailed description of the steps to be taken to implement removal of the WSI. The proposed plan, presented in the Initial Application, discussed with the Washington AGO and Ecology and presented in detail in the PPCD Detailed Proposal, is that the entire contents of the WSI will be excavated and disposed off-site, along with the liner materials beneath the contents and the cover materials placed over the WSI at the time of the closure of the WSI in 1994. The PPA Detailed Proposal, once finalized with Ecology, will provide the basis for the PPCD to be entered into between the Applicant and the Washington AGO.

Site Security

A fencing plan and/or a public health and safety plan will be developed to protect public health and safety, safeguard the security of the hydropower generating facility, and prevent wildlife from entering the Project reservoirs and other features and becoming entrained or otherwise harmed. All of these objectives will be addressed in the plan to provide a comprehensive approach to fencing and other restraints to control public and wildlife access to the Project area. Reservoirs will be fenced to minimum height of 8 feet with chain link fence. Weather permitting, fences will be monitored on at least a weekly basis when staff are present at the reservoirs, and any damage (e.g., vandalism) will be fixed as soon as practicable. This plan will include the following components:

- Fencing around Project components.
- Signs warning the public of high voltage and other hazards, placed on the appropriate fence locations.
- Locked gates and/or rock barricades that may be installed to limit vehicle access.

b. Noise

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Noise from existing vehicle traffic on nearby Lewis and Clark Highway (SR 14), machinery noise from trucking, wind farm operations, and agricultural practices may be detected from the portions of the Project site. However, existing ambient noise would not affect Project design, development or operation.

- 2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Potential noise that could be attributed to the Project consists of short-term construction noise and long-term operational noise.

Construction

Construction of the Project is anticipated to occur over a 5-year period. It is anticipated that construction activities that generate noise would occur between the hours of 7 a.m. and 6 p.m., Monday through Friday, but activities will be conducted in accordance with the proposed contractor's schedule. It is not unusual for a project of this magnitude to be constructed under a two-shift or three-shift schedule, usually without any significant construction over the weekends. Most of the noise-generating Project construction would occur at the upper and lower reservoir sites. Construction equipment will include large excavators, scrapers, cranes, loaders, dump trucks, and miscellaneous material delivery by over-the-road semi-tractor trailers. Construction activities will also include explosive blasting for rock excavation for the reservoirs and powerhouse. It is also likely that a portable concrete batch plant will be erected onsite to produce concrete for the Project.

Noise generated along access highways and Project roads will be limited, with most heavy equipment remaining onsite. However, as Project features are completed some heavy equipment would be removed from the site, while other equipment may arrive onsite during different phases of the Project. Blasting during construction is expected to be limited to the reservoirs and powerhouse area. The duration of and sound intensity of blasting would depend upon geologic site conditions and will be determined during more detailed Project design.

Operations

The powerhouse and turbine-generator system would be the greatest potential source of operational noise. However, it is not anticipated that noise levels associated with the powerhouse and turbines would contribute to elevated ambient noise as they will be located underground. Therefore, operational noise from the Project is expected to be negligible. It is probable that an alarm system would be used to alert bystanders to the start of pumping from one reservoir to the other. This would create short-term local noise, but it would be intentional as a safety feature and should not be mitigated.

- 3) Proposed measures to reduce or control noise impacts, if any:

Construction

Construction noise can vary greatly and depends on the activity, duration, and equipment used. The Occupational Safety and Health Administration states that exposure to 90 decibels (dB) for 8 hours is acceptable without ear protection. According to the Federal Highway Administration handbook, most construction equipment is below 90 dB at a distance of 50 feet from the source. Doubling the distance from the noise source generally lowers the noise level by 6 dB. Thus, if the sound is 90 dB at 50 feet, a distance of 800 feet would dampen the level to less than 66 dB, which is approximately equal to normal conversation level. Surface blasting will have periodic noise impacts, but public access and existing residential buildings are located at significant distances from the areas where blasting may occur, thus minimizing potential noise impacts. The nearest receptor to the lower reservoir is a single residence on the west side of Lewis and Clark Highway (SR 14) that is approximately 0.4 mile away. At this distance, construction vehicles will not be noticed; however, blasting will be heard. The nearest receptors to the proposed upper reservoir are infrequently used

agricultural buildings to the north, approximately 1.2 miles from the upper reservoir. Both construction vehicles and blasting will have minimal noise effects at that distance.

Operations

The Project reservoirs and powerhouse will be sited well away from residential structures, and the powerhouse and turbines will be constructed underground. Therefore, it is not anticipated that operational noise would impact residents or recreational users in the Project vicinity.

Because of the isolated nature of the Project location, no specific measures are proposed to reduce noise during Project construction or operation. Refer to FLA Exhibit E, Section 10—Noise for additional analysis.

8. Land and Shoreline Use

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

Project Site

The proposed Project Boundary encompasses approximately 652 acres of private lands owned by NSC Smelter, LLC. The only public lands within the Project Boundary are associated with the BPA transmission right-of-way. Existing uses within the proposed Project Boundary include:

- The Project's lower reservoir area is on lands that previously were used as support areas for the CGA smelter (also known as Harvey Aluminum, Martin Marietta Aluminum, Commonwealth Aluminum, or Goldendale Aluminum). This facility was a primary aluminum reduction smelter that generally operated from 1969 to 2003, with a few periods when the plant shut down or had limited operation.
- Washington State Route 14 (Lewis and Clark Highway). Project tunnels will be constructed underneath the highway and will not interact with or interfere with highway operations.
- One wind turbine associated with the Windy Point Phase I wind farm is inside the Project Boundary. It is unrelated to the Project and will not be affected by the Project. It is located immediately above the subsurface headrace tunnel, but should be considered excluded based on its vertical separation from the headrace tunnel.
- Two power distribution lines of unknown voltage that are supported by single pole structures and H-frame wood towers.
- The proposed transmission line will utilize an existing, available circuit on BPA transmission line structures within a utility right-of-way. The existing transmission lines aerially cross the Columbia River to the existing BPA John Day Substation near Rufus, Oregon. No changes in land use will occur as a result of the additional line, which has already been permitted for the existing use by BPA.

Adjacent Lands

The upper reservoir vicinity includes wind farms and dry-land agriculture/rangeland. A wind farm is located directly adjacent to the proposed Project boundary and consists of 13 wind turbines owned by Tuolumne Wind Project Authority. These wind turbines are part of the Windy Point Phase I Project, which consists of 62 wind turbines. Agricultural use of non-irrigated pasture lands (cattle grazing) occurs in the sage-steppe shrub and grasslands north of the Project boundary.

The adjacent lands to the east of the lower reservoir area are the former CGA smelter (currently owned by NSC Smelter). The smelter ceased operations in 2003 and the only activity on those lands now is associated with operation and maintenance of closed waste management facilities and site investigation activities. The lower reservoir vicinity includes the BPA Harvalum Substation, Washington State Highway 14, and the John Day Dam at the Columbia River.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

Portions of the Project site may have historically been used for agriculture/rangeland. However, the overall Project site has not been used for such purposes since initial construction and operation of the CGA Smelter in 1969.

None of the subject parcels have been designated by Klickitat County as resource lands of long-term commercial significance that are subject to the provisions of Chapter 19.53 Klickitat County Code or have been classified under the current use provisions of 84.33 or 84.34 RCW. Therefore, the Project will not convert any forest or agricultural lands of long-term commercial significance or lands in current use tax status.

- 1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

The completed Project will not affect or be affected by agricultural or forestry operations.

- c. Describe any structures on the site.

Existing structures within the Project boundary include one wind turbine and two power distribution lines that are unrelated to the Project.

- d. Will any structures be demolished? If so, what?

A new 5,600-foot-long alignment for two power distribution lines around the south side of the lower reservoir would require relocation of five to six wooden H-frame towers and nine to ten single-pole structures. No structures will be demolished.

- e. What is the current zoning classification of the site?

Three different Klickitat County zoning designations exist within the proposed Project Boundary.

- The lower reservoir area, including the CGA smelter lands, is classified as Industrial Park. Industrial Park areas are areas suitable for the manufacture, distribution, and assembly of finished products that have relatively light impact on adjacent uses and districts.
- The upper reservoir area is primarily classified as Extensive Agriculture. Lands zoned Extensive Agriculture encourage the continued practice of farming on lands best suited for agriculture, and prevent or minimize conflicts between common agricultural practices and nonfarm uses.
- Lands between the upper reservoir and lower reservoir are classified as Open Space. The Open Space classification is intended to conserve the open character of land, and to safeguard the health and safety of people by limiting development in areas where safe conditions (e.g., ability

of first responders to respond, protection against flooding or erosion) are not possible without excessive costs to the community.

The Project also falls within the Klickitat County Energy Overlay Zone (EOZ) (Chapter 19.39 Klickitat County Code). The EOZ was established to designate areas suitable for the establishment of energy resource operations based on the availability of energy resources, existing infrastructure, and locations where energy projects can be sensitively sited and mitigated. Under this ordinance, siting criteria were established for the utilization of wind and solar energy resources. Each energy resource project is subject to individualized review and imposition of conditions based on site-specific information, which would be tailored to address project impacts in accordance with the siting criteria.

f. What is the current comprehensive plan designation of the site?

Not applicable. Klickitat County has chosen not to “opt in” under RCW 36.70A.040 of the Washington State Growth Management Act, and therefore is required to comply only with the minimum requirements of the Growth Management Act (i.e., designation of resource lands and adoption of critical areas development regulations). Therefore, there is no current comprehensive plan designation for the site.

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable. The Project site is not located within the jurisdiction of the Klickitat County Shorelines Master Plan.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

The ephemeral streams discussed in Section B.3.a.1 of this checklist are likely jurisdictional waters of the United States and, therefore, may be classified as critical areas under 2013 Klickitat County Critical Areas Ordinance (CAO), Chapter IV—*Critical Fish/Wildlife Habitat Conservation Areas*. Portions of the Project site may also be subject to the landslide area provisions under CAO Chapter V—*Geologically Hazardous Areas*.

The intermittent stream and seep do not likely qualify as critical areas as they lack surface connectivity to the Columbia River. The wetland and ponds do not meet critical area criteria under the county CAO due to size and artificial creation, respectively.

i. Approximately how many people would reside or work in the completed project?

The proposed Project will provide numerous temporary construction jobs, as well as permanent maintenance and operations positions. According to an Economic and Fiscal Impact Analysis that was prepared for the Project in 2019, Project construction may directly and indirectly support approximately 210 jobs in Klickitat County. Once operational, the Project may directly employ approximately 40 to 60 people. Of these, approximately 15 to 20 may be Klickitat County residents, with the remainder residing and working elsewhere in Washington or Oregon. Refer to FERC FLA Appendix I—*Economic and Fiscal Impact Analysis of the Goldendale Pumped Storage Project* for additional information.

i. Approximately how many people would the completed project displace?

None. The Project site largely consists of undeveloped lands with no existing residential development or business operations.

- k. Proposed measures to avoid or reduce displacement impacts, if any:

Not applicable. The completed Project will not displace any people.

- l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The Project location was selected due to the Project's compatibility with existing land uses and zoning, and it was designed to minimize greenfield development and disturbance to current and adjacent land use. Although land uses in the Project area are currently classified as undeveloped by the County, the lower reservoir area contains remnant facilities from the CGA smelter, and the upper reservoir site is utilized for wind energy. After Project construction, the lower reservoir area would maintain its current industrial land uses. Land use in the upper reservoir area would change where the reservoir and associated facilities are constructed, but wind farm and non-irrigated agriculture (grazing) on adjacent lands would not change. The current land surface would not change in the area of the penstock where the Project would be constructed underground.

Impacts to land use are minimal at the proposed Project location due to the following:

- The Project is compatible with the County's zoning designations. With its location inside the County's EOZ, the Project is consistent with the regulation's purpose of siting energy projects in areas with existing infrastructure and locations that can be sensitively managed. The Project supports generation of renewable energy resources, consistent with the purpose of the overlay zone and nearby wind and hydroelectric energy projects.
- Reuse of a brownfield site is preferred over development of a greenfield area due to the relatively reduced potential for impacts to environmental and social resources.
- The Project is compatible with adjacent land uses (wind energy development and John Day Lock and Dam). Further, adjacent land uses including energy generation, agriculture, transportation, and undeveloped land would not be impacted by the proposed Project's construction or operations.
- The KPUD water rights that will be used to provide water for the proposed Project were previously used for industrial purposes, which is consistent with the intended future use.

- m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

Not applicable. Klickitat County has not designated any agricultural or forest resource lands of long-term commercial significance within the Project site.

9. Housing

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

The Project does not include provision of housing units.

- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

The Project does not eliminate any housing units.

- c. Proposed measures to reduce or control housing impacts, if any:

The closest town to the Project is the City of Goldendale, Washington (19 miles). Other nearby communities expected to provide potential housing to Project workers are Centerville, Washington (19 miles); Wishram, Washington (17 miles); Rufus, Oregon (17 miles); and The Dalles (31 miles), Oregon. Rental vacancy rates are anticipated to be adequate to accommodate the in-migration of permanent Project personnel. Since the majority of construction personnel will be relocating temporarily, some are expected to travel and stay in their recreational vehicle, as is common practice for construction projects in remote areas. Others are anticipated to either commute or find temporary housing from the available rental units in nearby communities.

No residences will be displaced by the proposed Project as there are none within the Project boundary and the underlying Industrial Park zone district precludes residential development.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

It is anticipated that the lower reservoir embankment will be the tallest Project component at approximately 205 feet high with an elevation of 580 feet above mean sea level. The second tallest Project element will be the upper reservoir embankment, which is approximately 175 feet high with an elevation of 2,940 feet above mean sea level. The constructed reservoir embankments will be concrete-faced rockfill structures.

- b. What views in the immediate vicinity would be altered or obstructed?

The proposed Project boundary and vicinity consists of rolling terraces and rangeland in the hills above the Columbia River. The upper and lower reservoir areas have distinctly different visual settings. In the vicinity of the lower reservoir, the visual setting is dominated by current and historic industrial activities related to John Day Dam, BPA rights-of-way, and the former CGA smelter. The vicinity of the area associated with the upper reservoir is a mix of large areas of grasslands interspersed with wind turbine generators and an associated road network, as well as limited areas of oak woodlands.

An assessment of the visual impact of the proposed Project location was conducted in 2019. The Project features assessed included the proposed locations of the upper and lower reservoirs, a buried powerhouse, tunnel portals, an aboveground substation, and transmission lines. The assessment was conducted in accordance with the Bureau of Land Management Visual Resource Management Inventory and Contrast Rating System.

The study area extends beyond the proposed Project Boundary into the Project vicinity, and encompasses the Project's topographic viewshed from which the Project is potentially viewable from publically accessible areas. The viewshed of the Project area encompasses approximately 158,500 acres. The study area contains many existing human modifications, including rural residences and communities, agricultural fields and structures, highways and other roads, substations, transmission lines, wind turbines, and a large hydroelectric dam. Communities within a few miles of the Project viewshed include Rufus, Oregon, and Goldendale, Washington. The majority of the Project viewshed is privately owned by individuals and the NSC Smelter, and it is characterized by wind farms, agricultural activities including irrigated crops, and range land used for grazing. The proposed lower reservoir is located within historic CGA smelter lands, which are

characterized by extensive modification and industrial development. Visibility of the Project infrastructure and features on the lower plateau extend east and west along both the north and south banks of the Columbia River.

Project components that will be visible once construction is completed include:

- Upper reservoir;
- Lower reservoir;
- Substation; and
- 230-kilovolt transmission line between the Project substation and BPA Harvalum substation.

Both the penstock and powerhouse will be located underground, which will reduce the visual impact on the surrounding area.

Visual Project impacts on selected key observation points (KOPs) were determined through field visits, completing visual contrast rating worksheets, and photograph simulations. The table below summarizes the results of the scenic quality and visual contrast rating evaluation, including a brief description of visible Project features for each KOP. Refer to FERC FLA Exhibit E, Section 8—*Aesthetics*, and FLA Appendix J—*Aesthetics Resources Study Report* for additional detail regarding visual study methodology, KOP locations and selection criteria, visual simulations, analysis, and conclusions.

KOP Location	Distance from Viewpoint	Scenic Quality Score	Ranking*	Contrast Rating	Visible Project Feature(s)
KOP 1— Median west of intersection of Hocor Road & US Route 97	5 miles	13	B	Weak	The reservoir berm will appear as a small tan-brown mass along the top of the gently rolling ridge, creating a horizon line that blends with the ridge.
KOP 2— Intersection of Willis Road and Hocor Road	2 miles	8	C	Weak	The reservoir berm will appear as a brown mass along the top of the gently rolling ridge, creating a horizon line that blends in with the ridge.
KOP 3— Top of the Columbia Hills at Juniper Point	1 mile	16	B	Moderate	The Project's lower reservoir, substation, and transmission line will be visible to the south. The overall vista includes the Columbia River, the John Day Dam, locks, the BPA transmission line, and the former CGA smelter in a landscape of a steep rocky cliff and rolling hills.
KOP 4— Gravel pullout adjacent to SR 14	0.13 mile	13	B	Strong	The Project's lower reservoir is prominent in the views foreground while the substation, and transmission line will be visible to the south and east. The overall vista includes the

KOP Location	Distance from Viewpoint	Scenic Quality Score	Ranking*	Contrast Rating	Visible Project Feature(s)
above proposed lower reservoir					Columbia River, the John Day Dam, locks, the BPA transmission line, and the former CGA smelter in a landscape of a steep rocky cliff and rolling hills.
KOP 5— Giles French/John Day Dam Park	1.2 miles	17	B	Weak	The reservoir berm will appear as a short and wide brown mass tucked in among the cliffs of the steep slope between the upper and lower reservoir, creating a horizon line that blends with other ridges slopes nearby.

* Ranking: B—above average diversity of interest; C—minimal diversity and distinguishing characteristics

Construction

During construction, equipment such as large trucks, drilling and grading equipment, and cranes will be present in the Project area. Construction activities, including clearing, grading, and staging of Project areas, are all considered to be short-term impacts to visual resources.

Temporary visual impacts will include construction laydown areas and increased clutter and activity during Project construction. The first will be located immediately adjacent to the northwest corner of the upper reservoir on the upper plateau, and the second will be located immediately adjacent to the southwest corner of the lower reservoir on the lower plateau. Temporary visual impacts on the upper and lower plateaus will be minimal due to the natural topography, viewing distances, and the visual impacts of existing land use.

Operations

The permanent Project features will be visible within the Project viewshed given the large mass of the reservoirs. Views of these Project features cannot be completely avoided due to their large size and the open landscape of the Project area. However, several of the Project features will be located underground, so no visual obstructions or impacts will occur as a result of these features (e.g., powerhouse, tunnels, and penstock).

c. Proposed measures to reduce or control aesthetic impacts, if any:

Project infrastructure and features have the potential to alter the visual characteristics of the existing landscape within the vicinity of the Project. Major Project features are in areas with existing industrial infrastructure, but efforts will be taken to mitigate visual impacts and blend the Project features with existing landscape features in the viewshed to the extent practicable. The Project design is still preliminary and the Applicant will consider the need to include engineering controls and mitigation measures, as well as work with agencies and stakeholders, to minimize potential visual impacts through refinement and final design of Project features.

Proposed project management and engineering measures to reduce visual impacts include the following:

- Engineering controls will be included during the design process, where practicable, to reduce contrasts visible between the existing landscape and the proposed Project from sensitive viewing areas.
- Minimize footprints or aboveground features to the furthest extent reasonably practicable.

- Ensure facilities are free of debris and store unused or damaged equipment off site, pursuant to the requirements of Klickitat County's EOZ. During construction, the Applicant will monitor the Project area for construction-related debris. Where practical, designated locations will be established for the temporary storage of construction debris.
- Reduce contrast through natural paint colors and surfacing materials that match the surrounding landscape and dulling reflective surfaces that cannot be painted.
- Native vegetation and/or trees could be planted to break up the lines of roads and facilities and soften the visual effect on the landscape.

Visual impacts that are the direct result of Project construction are considered temporary, will be restored to pre-existing conditions where practicable (e.g., revegetation management of temporarily disturbed areas), and will include the application of mitigation measures planned to reduce impacts to the visual landscape aesthetic both during Project construction and following construction activities where necessary. It is anticipated that the completed Project infrastructure and features would be consistent with existing development in the area, particularly within the industrial zone (NSC Smelter), and that no further mitigation is proposed other than the measures and final design processes referenced above.

11. Light and Glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Project staging and construction areas would require temporary lighting, including equipment lights and portable light structures such as light buggies or trailers in the evenings, particularly during the fall and winter when daylight is shorter. New permanent lighting will be required at some Project features and would be installed as needed for worker safety and operations. Lighting associated with the completed Project would be operated at night.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

It is not anticipated that lights associated with construction or operation of the Project would be a safety hazard or interfere with views.

- c. What existing off-site sources of light or glare may affect your proposal?

There are no known off-site sources of light or glare that will affect the Project.

- d. Proposed measures to reduce or control light and glare impacts, if any:

The Project area lies within the Klickitat County EOZ and is subject to aesthetic ordinances, which include minimizing security lighting and directing lighting fixtures away from adjacent properties. The Applicant will seek to minimize Project exterior lighting consistent with EOZ requirements, as well as to protect the currently dark night sky from light pollution, while also meeting standard facility operational and safety requirements.

Proposed project management and engineering measures to reduce potential light and glare impacts include the following:

- Design, install, and maintain facility lighting to prevent casting of light into adjacent native habitat. Incorporate directional lighting; light hoods, low-pressure sodium bulbs, or light emitting diode lighting; and operational devices in final design to allow surface night-lighting in the central Project area to be turned on as needed for safety.

- Install fully shielded low-pressure sodium lighting to reduce lighting impacts to protect the current dark sky conditions from light pollution.
- Minimize lighting to the extent possible through the use of lamp types, covers, timers, motion sensors, or other means. Class II lamp source and shielding requirements will be used where outdoor lighting is necessary.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?

As the Project will be on private lands, there are no public recreational opportunities within the Project site. Additionally, recreational opportunities in the Project area are limited by past and ongoing industrial uses, including the historical CGA smelter in the lower reservoir area and operational wind turbines in the upper reservoir area.

The following formal and informal recreational opportunities are located within a 10-mile radius of the Project area. These recreational opportunities collectively offer public access to fishing, hunting, camping, boating and water sports, beach access and swimming, picnicking, paragliding, hiking, horseback riding, wildlife viewing, astronomy, scenic travel, and interpretive education.

- State Route 14 (Lewis and Clark Trail Highway), a Scenic and Recreational Highway—crosses the Project footprint between the upper and lower reservoirs
- Lewis and Clark Trail, a National Historic Trail—approximately 0.25 mile south along the Columbia River (no facilities)
- Cliffs Park (Washington)—approximately 0.25 mile southeast
- Railroad Island Park (Washington)—approximately 0.75 mile southeast
- Giles French/John Day Dam Park (Oregon)—approximately 1 mile southeast
- LePage Park (Oregon)—approximately 3 miles east
- John Day River (Oregon), a National Wild and Scenic River and Oregon Scenic River—approximately 3 miles southeast
- Philippi Park (Oregon)—approximately 5.5 miles southeast
- Maryhill State Park (Washington)—approximately 5.8 miles southwest
- Oregon Trail (Oregon), a designated National Historic Trail—approximately 7.1 miles south
- Goldendale Observatory State Park (Washington)—approximately 7.4 miles northwest
- Gifford Pinchot National Forest (Washington)—approximately 8 miles southwest
- Goldendale Hatchery (Washington)—approximately 10 miles northwest
- Deschutes River (Oregon), a Wild and Scenic River—approximately 10 miles southwest

Refer to FERC FLA Exhibit E, Section 7—*Recreation*, for additional information regarding existing recreational resource opportunities in the greater Project area.

- b. Would the proposed project displace any existing recreational uses? If so, describe.

The Project would not displace any existing recreational uses.

The nearest recreational opportunities to the Project are associated with scenic travel (State Route 14 and the Columbia River) and two paragliding locations, Cliffs Park, and Railroad Island Park. The parks and the Columbia River are located outside of the Project boundary. A private paragliding launch site, called "Cliffside Launch," is in the vicinity of the Project boundary. The Applicant met with the President of the Cascades Paragliding Association in December of 2018 to better understand how paragliders use the Cliffside Launch and confirmed that the Project, as proposed, will not interfere with the use of Cliffside Launch, nor will it interfere with local flyers. Paragliders launching from this location will not land within the Project Boundary.

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

As public recreation facilities are not available inside the Project area, there will be no impacts to existing or future recreation opportunities inside the Project area during construction or operations. Furthermore, public access will not be provided to the Project area during construction and operations. Therefore, no new recreational opportunities will be developed in association with the Project.

It is anticipated that potential impacts to recreation in the Project vicinity will be limited to construction traffic delays or noise affecting traveling recreationists due to Project use of public roads. The nearest recreational facility to the Project site is Cliffs Park. The most direct vehicle access to the park is via John Day Dam Road between mileposts 108 and 109, which travels through the Project area. Increased use of John Day Dam Road by construction vehicles could temporarily impact recreation users and create travel delays or disturbances. Additionally, recreational traffic on State Route 14 could experience travel delays or disturbances during construction. Traffic during Project operations will not be at a level that would impact recreational travelers. All other existing recreation sites are several miles from the proposed Project area and, as a result, temporary or intermittent indirect impacts are expected to be minimal.

The Applicant's objectives are to minimize disturbances to and protect recreational resources in the Project area. Proposed management measures include, but are not limited to the following:

- Working closely with federal, state, and local agencies to ensure that construction activities, timing, methods, and facility operation are in accordance with these objectives. If temporary disturbance to identified recreational resources may be significant and unavoidable, mitigation measures will be identified and implemented to reduce potential effects. If needed, recreation management measures will be developed and included in a Visual and Recreation Resource Management Plan, which would be submitted as a component of the FERC license application.
- Coordinating construction schedules and any associated road closures with the Washington State Department of Transportation and Klickitat County to avoid interruption of recreational traffic.
- Access to and from the construction site will be closed to the public. A fencing plan and/or a public health and safety plan will be developed to protect public health and safety.
- An interpretive sign will be placed in an area near the Project that is accessible to the public and from where the Project can be viewed. The interpretive sign will display a map of the Project and provide information on pumped storage. Subject to further consultation with USACE, the interpretive sign could be placed on USACE-managed recreation lands in proximity to the Project.

13. Historic and cultural preservation

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers ? If so, specifically describe.

There are no existing buildings or structures that are eligible for listing within the Project boundary or area of potential effect (APE), including both the upper and lower reservoir areas. However, there are known traditional cultural properties (TCPs) within the Project APE. Refer to FERC FLA Exhibit E, Section 4—*Historical and Archaeological Resources/Cultural and Tribal Resources*, and Appendix H—*Yakama Cultural Report* for additional information and analysis.

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

Forty-one resource sites within 1 mile of the proposed Project have been documented in previous studies. Of these, nine are considered eligible for inclusion in the National Register of Historic Places, 10 are considered not eligible, and the remaining 22 are undetermined, unevaluated, or require further work/additional information to make a formal eligibility determination. The existing documentation and a Project-specific resource assessment indicate that the Project APE contains archaeological resources. Refer to FERC FLA Exhibit E, Section 4—*Historical and Archaeological Resources/Cultural and Tribal Resources*, Appendix G—*Historic Properties Management Plan*, and Appendix H—*Yakama Cultural Report* for additional information, analysis, and recommendations.

- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

In response to early consultation with tribes, the Applicant contracted the Yakama Nation Cultural Resources Program (CRP) to perform a comprehensive archaeological resources and TCP identification survey of the proposed Project APE in 2019. The CRP conducted the survey to meet the Secretary of the Interior's Standards and Guidelines for Identification as well as pertinent aspects of Washington State Department of Archaeology and Historic Preservation (DAHP) standards for reporting.

The principal objective of the survey was to reidentify any existing known sites and survey for any previously unrecorded archaeological, historic, or cultural properties within the proposed Project APE. Activities undertaken to analyze the Project included review of project plans, a review of the DAHP cultural site and cultural survey GIS database, an examination of the Yakama Nation cultural site atlas, and a field survey of the proposed APE. Analysis also included a detailed review of pertinent literature (e.g., site forms, reports), topographic maps, soil surveys, aerial photographs, historical maps of the area, and other resources to establish the ethnographic, archaeological, environmental, and land use history of the Project vicinity. The goal of these investigations was not only to gather an appropriate prehistoric land use history, but also to determine whether any historic land use resulted in alterations to the landscape that may have affected the integrity of archaeological resources and TCPs present. Additionally, CRP cultural specialists were consulted to identify any known significant cultural properties within the area. The Project was surveyed in July 2019 and included approximately 500 acres.

Because the Project footprint in Oregon will be restricted to existing BPA transmission lines (aerial only) and the John Day Substation for which no new groundbreaking activities will occur, the analysis focused primarily on Washington State. Areas outside the tunnel entrances, laydown areas, and the dam footprint areas were not surveyed.

Refer to the CRP study report in FERC FLA Appendix H (filed under Privileged Information) for additional information regarding assessment procedures, analysis, and findings. Several previous studies and inventories have also been completed in and around the Project area. These are described in more detail in the Historic Properties Management Plan (HPMP) that has been developed for the Project (FERC FLA Appendix G).

To date, Project application review has also included correspondence with the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, DAHP, and the Oregon State Historic Preservation Office (SHPO).

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

Planning

A draft HPMP has been developed for the Project. The document includes a review of currently available resource documentation to help identify known cultural resources, and provides guidance and procedures for considering and managing potential effects that may result from activities associated with the construction, operation, and maintenance of the Project. The HPMP also includes an Unanticipated Discovery Plan, which contains procedures that will be implemented in the event that previously unknown cultural resources are inadvertently discovered during Project activities.

Permitting and Consultation

Consultation with applicable agencies (e.g., DAHP/SHPO) and consulting tribes will continue to be pursued during the final FERC licensing application process. During the license proceedings, FERC will confer with consulting parties to determine the Project's effects on historic and cultural resources to resolve potential adverse effects and to develop appropriate protection and/or mitigation procedures and processes as necessary. A Programmatic Agreement (PA) will be developed between FERC, the Washington DAHP, the Oregon SHPO (if cultural resources extend into Oregon), and, if appropriate, the Advisory Council on Historic Preservation.

The potential for impacts to archaeological resources and TCPs will be further defined during this process. The following is a summary of potential effect types that will be evaluated for development of a PA, the final APE, and the final HPMP:

- Physical disturbance or damage caused by ground disturbance (e.g., digging);
- Introduction of visual, atmospheric, or audible elements that could diminish the integrity of a property's significant cultural features during short-term construction of aboveground facilities and roads, as well as long-term effects from facility operations; and
- Change in the character of the use or of physical features within the historic property's setting that contribute to its significance.

In addition, there is an existing PA between DAHP and BPA that covers the upper portion of the APE. Within that Project area, there is a stipulation for BPA to create a plan that will allow continued tribal member access for specific cultural purposes.

Construction and Operation

Potential impacts to known and unknown cultural resources could include damage during construction activities and/or permanent loss through land use conversion (e.g., constructing permanent structures over cultural resources). The scale and potential for impact depends on presence of eligible cultural sites, location of the facility, type of construction, and size of the footprint. Indirect effects (i.e., visual, auditory, vibrational, or atmospheric) caused by construction and/or operation activities could affect certain types of sensitive resources. Additionally, historic structures and buildings located outside the direct Project footprint could also be affected indirectly by the proposed Project, as visual, auditory, vibrational, or atmospheric impacts could compromise the properties' historic sense of setting, feeling, or character.

Project construction activities could potentially affect cultural or historic resources in a variety of ways, including:

- Possible physical damage within the construction footprint;
- Possible damage through vibrations caused by earth-moving and heavy equipment;
- Temporary loss of community access to TCPs;
- Potential permanent visual effects that alter the viewshed to or from a resource as it pertains to its setting and feeling;
- Potential temporary visual effects while heavy equipment and numerous personnel are present; and
- Discovery of previously unknown historic properties within the construction footprint.

The duration of the construction phase will affect the degree of effects on historic properties. Many of the potential indirect effects during construction—such as noise, dust, vibrations, heavy equipment traffic, and certain changes in viewshed—would be temporary and expected to last for the duration of construction in specific areas and for discrete periods of time.

During the operational phase of the proposed Project, only previously surveyed and assessed areas will be expected to require periodic disturbance during the term of the license; therefore, the potential for additional physical effects to cultural resources will be limited. Indirect effects during operations could consist of a permanent change in viewshed to historic structures or TCPs near Project area facilities, and a periodic increase in noise, vibration, and dust created by vehicular traffic conducting operation and maintenance activities.

If archeological resources are inadvertently discovered within the Project boundary during construction or operations, the processes and procedures that are defined in the final HPMP and Unanticipated Discovery Plan will be implemented.

Refer to FERC FLA Exhibit E, Section 4—*Historical and Archaeological Resources/Cultural and Tribal Resources*, Appendix H—*Historic Properties Management Plan*, and Appendix G—*A Cultural Resource Survey for the Goldendale Energy Project No. 14861* for additional information.

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

Roads serving the Project site and providing construction site access include:

Washington

- Washington State Route 14 (Lewis and Clark Highway)
- U.S. Route 97
- Hocotor Road
- John Day Dam Road
- Private access roads

Oregon

- Interstate 84
- 1st Street
- Main Street
- John Day Substation Road

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

According to the Gorge Translink transit maps, there is no regular public transit service in the vicinity of the Project site. The closest transit service is provided by Mt. Adams Transportation Services in the City of Goldendale, which is approximately 8 miles northwest of the Project site.

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

The specific number and location of new parking spaces for the completed Project will be determined during final Project design. However, it is anticipated that the Project will include sufficient on-site parking capacity (per Klickitat County parking standards) for the number of operational employees and service vendors/providers that may be expected on site at any one time.

No existing parking facilities will be eliminated by the Project.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

Construction of the upper reservoir and associated improvements on the upper plateau will be completed using existing, informal private access roads for construction site access. No new public roads or public transportation facility improvements will be required for the Project.

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The Project site is approximately 0.5 mile north of the Columbia River at River Mile 215.6, just downstream (west) of the John Day Dam, and is approximately 0.25 mile north of an existing BNSF Railway line that is situated between the Project site and the Columbia River. However, the Project will not utilize water or rail-based transportation and does not require access to these features.

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks

(such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

Specific estimates for the number, duration, and location of peak construction vehicle and heavy equipment use are unknown at this time. However, construction-related traffic would be temporary and overall Project-related traffic would significantly decrease upon completion.

It could be assumed that the completed Project might generate approximately 15 to 20 round-trip vehicle trips per day under operational conditions if all workers were to work a single shift every day and each individual were to drive a single occupant vehicle. However, this scenario is not anticipated as the operational facility would not be fully staffed at all times. Measures, such as carpooling, might further reduce potential vehicular trip generation. Specific estimates for the number and timing of peak operational vehicle traffic are unknown at this time. However, it is anticipated that vehicular traffic associated with the completed Project would be less than what was previously generated by the former CGA smelter and that it would not adversely affect existing levels of service on adjacent SR 14.

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

The completed Project will not affect or be affected by the movement of agricultural or forest products.

- h. Proposed measures to reduce or control transportation impacts, if any:

Construction schedules and any temporary road closures would be coordinated with the Washington State Department of Transportation and Klickitat County in order to minimize disruption of existing traffic on public roads. A Traffic Management Plan containing applicable traffic control measures (e.g., signage, flaggers at key intersections, reduced speed limits or other speed control devices, controlled/limited access routes) would be prepared in coordination with the applicable agency(ies). Access to and from the construction site will be closed to the public. No additional measures are proposed during operation.

15. Public Services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

While it is anticipated that there will be a temporary influx of construction workers during the Project construction phase, it is not anticipated that 40 to 60 direct operational employees (estimated 15 to 20 in Klickitat County) will have a significant impact on the area's government facilities and services. Some workers who relocate to the area may move to Goldendale, Washington, while others may choose to live in nearby communities such as The Dalles, Oregon, and Klickitat, Sherman, or Wasco County communities. Because some workers will be local and would not need to relocate, and others will disperse throughout the area, the permanent migration into the Project area due to the Project is not anticipated to strain existing government facilities and services.

- b. Proposed measures to reduce or control direct impacts on public services, if any.

It is anticipated that increased tax revenues from the completed Project, as well as an increase in spending and available wages (e.g., sales tax [Washington], income tax [Oregon]) would serve to supplement public services. No additional measures are proposed.

Refer to FERC FLA Exhibit E, Section 5—*Socioeconomics*, and Appendix I—*Economic and Fiscal Impact Analysis of the Goldendale Pumped Storage Project* for additional information and analysis.

16. Utilities

- a. Circle utilities currently available at the site:

electricity natural gas, water, refuse service, telephone, sanitary sewer, septic system, other

KPUD electrical service that formerly served the CGA Smelter is available to the subject property. The Project will tie in to the existing service connection.

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

It is anticipated that the following utilities services will be required for completed Project operations:

- Reservoir water—KPUD
- Potable water—KPUD
- Electricity—KPUD
- On-site septic system—Private
- Refuse—Republic Services
- Phone / Internet—To be determined

As discussed in Section B.3.a.4 of this checklist, initial fill water and periodic make-up water for the Project will be purchased and obtained from KPUD using a KPUD-owned conveyance system and municipal water right. Potable water will also be provided by KPUD via tie-in to an existing potable water service line.

Electrical service for general facility operations (e.g., lighting, office operations, security) will also be provided by KPUD via tie-in to an existing service connection near the former CGA smelter facility.

As discussed in Section B.3.b.2 of this checklist, it is anticipated that a single private on-site domestic sewer system will be constructed to serve personnel at the lower reservoir. Specific system details (e.g., size, type, location) are not known at this time, but will be developed through the final Project design process.

As discussed in Section A.11 of this checklist, 115 kV transmission lines will be routed from the transformer gallery to a new outdoor 115/500 kV substation and switchyard near the lower reservoir, from which a new double-ended 500-kV transmission line will be aerially routed to the existing John Day Substation for interconnection into BPA's transmission system.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee _____

Position and Agency/Organization _____

Date Submitted: _____

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